State of Illinois
Illinois Department of Labor

OCCUPATIONAL SAFETY AND HEALTH COMPLIANCE GUIDE FOR FIRE DEPARTMENTS



ILLINOIS OSHA

Division of Occupational Safety and Health

General Disclaimer

This guide was created as a resource for public sector fire departments in Illinois to achieve compliance with the minimum legal requirements for occupational safety and health contained in standards adopted by the State of Illinois. This guide cannot possibly cover every regulatory standard that may apply to fire departments but does provide a wealth of information to assist employers with providing a safe and healthful work environment.

Grant Funding Declaration

The 23(g) State and Local Government Plan is funded by a federal grant which constitutes fifty percent of the overall budget. Fifty percent is financed by State funds.

Clarification on Fire Department and Fire District

Illinois OSHA understands the similarities and differences between a municipal fire department and a fire protection district, however, for the purposes of simplicity the term “fire department” will be used in this guide to reference both types of fire protection organizations.

External Links

There are several resources and websites that are hyperlinked in this document. Most links are not administered by the Illinois Department of Labor. Links that no longer function can be reported to DOL.Safety@illinois.gov.

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Introduction

Mission Statement

It is the mission of Illinois OSHA to ensure safe and healthy working conditions by setting and enforcing standards and providing training, outreach, education, and assistance to employers and employees throughout Illinois.

Illinois Department of LABOR

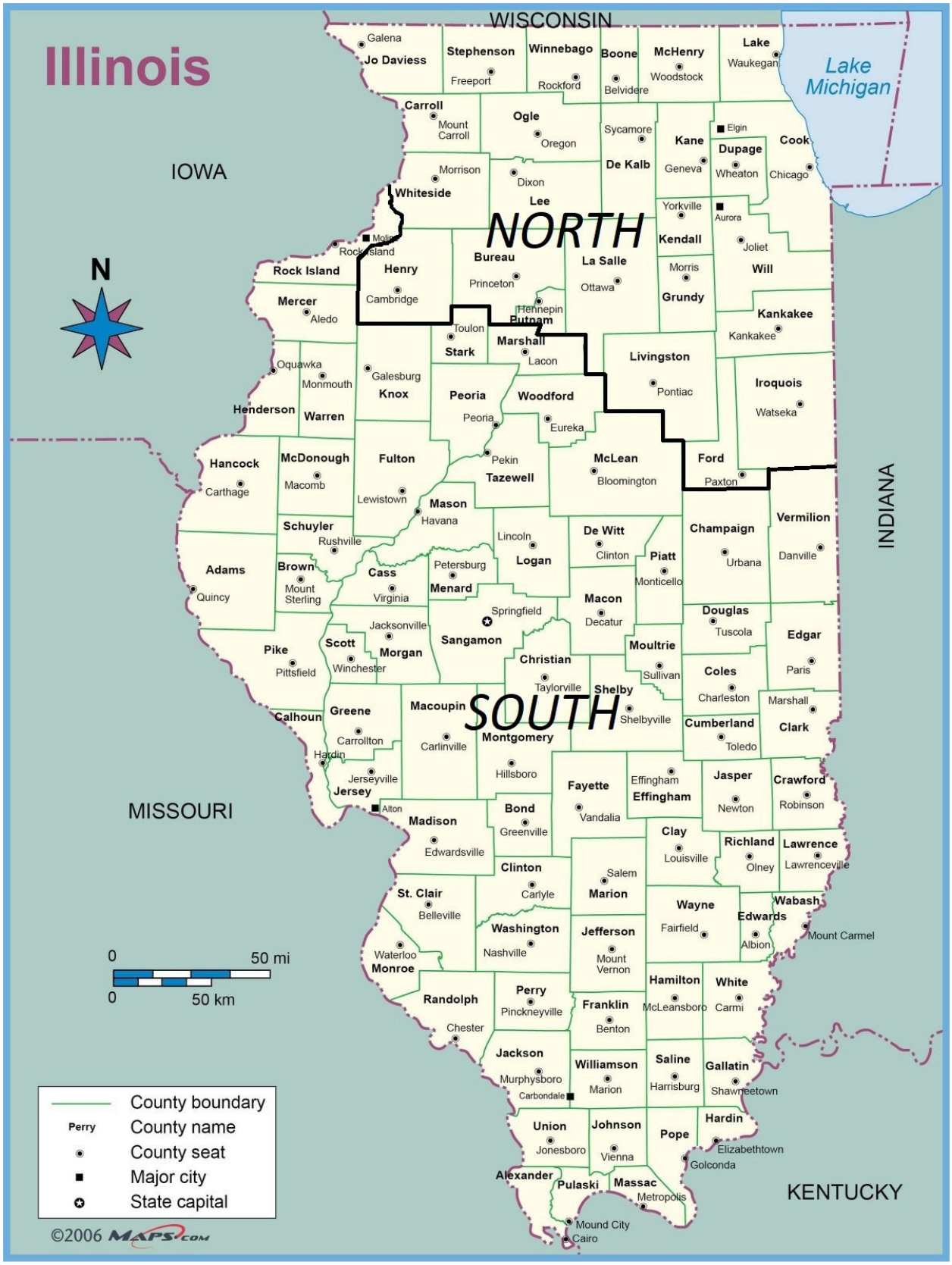
ILLINOIS OSHA

Illinois OSHA, formally known as the Illinois Department of Labor, Division of Occupational Safety and Health, receives its authority through the Illinois Occupational Safety and Health Act (state law). Administrative Rules that have the force of law have been developed to ensure the Act is properly implemented and to facilitate public understanding of the requirements of the Act. IL-OSHA is made up of two separate programs: enforcement and consultation.

Enforcement

The IL-OSHA public sector enforcement program has been in place since 1985. Public sector employers in Illinois consist of all state, county, municipal, special district and other forms of local government. IL-OSHA enforces standards for fire departments directly from federal regulations on occupational safety and health. **These regulations have the effect of law and are the minimum legal requirements for occupational safety and health in Illinois.** IL-OSHA conducts planned inspections, investigates fatalities and severe injuries, and receives complaints and referrals on workplace health and safety issues. Federal OSHA, within the U.S. Department of Labor has jurisdiction over private sector and federal employer enforcement in Illinois.

IL-OSHA enforcement is divided into two regions, one is designated as the north region, and the other is the south region. Each region is led by an enforcement manager that has a team of inspectors and industrial hygienists. The north region office is in downtown Chicago and the south region operates out of offices in Springfield and Marion.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Consultation

ILLINOIS ON-SITE
Safety & Health Consultation Program

IL-OSHA's consultation program has been in place for decades. Since 2011, IL-OSHA's consultation services have been available to public sector employers. Consultation services are provided through on-site visits, which are initiated by an employer making a consultation request. Services include but are not limited to, helping employers identify safety and health hazards, control or eliminate hazards, establish or improve a workplace safety and health program, and better understand requirements of applicable standards. Fire departments may contact the consultation program at DOL.Consultation@Illinois.gov or by calling 800-972-4216. Fire departments may also be eligible for on-site consultation assistance free of charge. Employers can complete an on-site consultation request here. More information about the consultation program is available here, and a frequently asked questions section is available here.

Fire departments that have an exemplary safety and health program may qualify for the Safety & Health Achievement Recognition Program or SHARP. Requirements to attain SHARP status are high and there are a limited number of SHARP awards for public sector employers in Illinois. More information on SHARP is available here.

SHARP
Safety & Health Achievement Recognition Program

Interacting with Illinois-OSHA Enforcement

There are several ways public sector employers and employees may interact with a member of the Illinois OSHA enforcement team.

Questions

Public sector employers and employees in Illinois are welcome to contact IL-OSHA enforcement at DOL.Safety@Illinois.gov or by phone at 217-782-9386. IL-OSHA cannot initiate an inspection on a fire department based on a question from that fire department. IL-OSHA enforcement personnel frequently field questions by Illinois public sector employers and employees on compliance issues.

Outreach/Training

IL-OSHA conducts outreach and training events across the state. These opportunities provide public sector employers and employees a forum to interact with IL-OSHA enforcement personnel on an informal basis. IL-OSHA's outreach and training efforts are designed to educate and inform employers of their legal obligations under the Illinois Occupational Safety and Health Act. To request an IL-OSHA representative for an outreach opportunity please e-mail DOL.Safety@illinois.gov.

Planned Inspection

IL-OSHA enforcement has extremely limited resources and could not possibly inspect every public sector employer in Illinois every year. Therefore, IL-OSHA focuses on the most hazardous public occupations and workplaces. Local fire protection is a focus for planned inspections for this reason. Quarterly, a list of randomly selected program planned inspections (PPIs) are generated. Each inspector is assigned several planned inspections within their area of responsibility.

IL-OSHA is forbidden to give advance notice for a planned inspection. An inspector will show up unannounced to conduct a comprehensive inspection of the workplace. Note: due to the nature of unstaffed stations, inspectors may attempt to contact fire chiefs of volunteer fire departments immediately prior to a planned inspection. The inspection process will be described in a later section.

Fatality/Serious Injury

All public sector employers must report the death of any employee from a work-related incident within 8 hours and the in-patient hospitalization, or amputation, or loss of an eye of one or more employees within 24 hours. Employers must call 217-782-7860 to report. This line is staffed by Illinois Emergency Management Agency

telecommunicators 24 hours a day. In many cases, these reportable events will trigger an on-site inspection by IL-OSHA. In some cases, IL-OSHA will not perform an on-site inspection but require the employer to perform their own investigation while being monitored by IL-OSHA.

Complaint

Employees have the right to file a confidential complaint with IL-OSHA on alleged health and safety violations in their workplace. IL-OSHA requests an employee to bring the potentially hazardous condition to the attention of the employer prior to making a complaint. If a complaint is filed appropriately, completely and is determined to be valid, IL-OSHA may contact the employer by letter and require them to respond to the alleged violation(s) within a certain number of days. If the employer response is satisfactory, the complaint may be closed. If the employer response is unsatisfactory, IL-OSHA may request additional information or open an inspection. IL-OSHA may also skip the letter process and open an inspection based on the alleged hazards in the complaint.

The complainant will receive communications from IL-OSHA throughout the complaint process. The complainant also has the right to appeal a complaint that is closed by IL-OSHA.

Referral

IL-OSHA also receives referrals from several sources on alleged violations or workplace incidents. Referral sources may include the media, federal OSHA, other government organizations, or a self-referral by an IL-OSHA inspector. For example, an IL-OSHA inspector drives by and observes firefighters engaged in live-fire training without proper personal protective equipment. The inspector could open an inspection based on a self-referral.

Like complaints, referrals could be handled by letter or result in an inspection.

Whistleblower

The Illinois Occupational Safety and Health Act prohibits employers from discharging or retaliating against an employee because the employee has complained about unsafe or unhealthful working conditions or has exercised other rights under the Act. A whistleblower complaint cannot be filed anonymously.

The Inspection Process

IL-OSHA inspectors may enter the workplace at reasonable times and without delay to conduct an inspection. An employer can refuse entry; however, IL-OSHA can then obtain a warrant to enter the workplace and conduct an inspection. The following sections outline the process for a comprehensive, program planned inspection. Other inspections opened due to a complaint, referral, or incident are usually classified as partial, and are limited in scope to specific hazards.

Opening Conference

The inspector will present their credentials and request an opening conference to explain the process and reason for the inspection. Employee representatives are entitled to attend the opening conference. Employee representatives may be union representatives in a career department or "rank-and-file" firefighters in a volunteer department. The inspector will provide both the employer and employees notice of their rights during the inspection. If the employer or employee representatives object to a joint opening conference separate conferences will be conducted.

Records and Programs Review

The inspector will request to review the past three years of injury and illness records. These records are known as OSHA 300 logs. The inspector will also verify if the department is subject to annual electronic reporting requirements. This will be discussed in a later section.

The inspector will also request to review a selection of written programs and documents to ensure compliance. For a fire department, the inspector will almost always ask for the following:

Standard Operating Procedures/Guidelines

- Respiratory protection written plan (p.47).
- Bloodborne pathogens written exposure control plan (p.54).
- Personal protective equipment hazard assessment (p.43).

Training records

- Initial training program for new members.
- Annual training program (p.28).
- Content of specific training topics.

- Individual training records of members based on functions (exterior/interior firefighter, driver/operator, incident commander, training officer, etc.).
- Initial and annual refresher hazardous materials training based on level of response (awareness, operations, technician).
- Initial and annual refresher self-contained breathing apparatus (SCBA) training.
- Proof of quarterly interior firefighter training (must include donning turnouts and SCBA and performing interior firefighting training evolutions "on air").
- Training (at a minimum annually) for any special services such as confined space rescue, trench rescue, etc.

Inspection records

- SCBA (flow tests), fire extinguishers, PPE, and other equipment and apparatus.

The inspector may request additional records based on observations, deficiencies, or inaccuracies during the records review. Requested documents should be immediately available. The inspector can also provide a special link for employers to electronically upload large files directly to IL-OSHA.

Walk-around

The purpose of the walk-around is to identify potential safety and/or health hazards in the workplace. In addition to an employer representative (fire chief, trustee, elected official, appointed official) an employee representative (union, non-union, volunteer) is also requested to participate in the walk-around. **It is highly advantageous for an employer to correct (if possible) a violation prior to the end of the inspection.** This will be noted by the inspector as "corrected during inspection" and require no further action by the employer. Inspectors will often take several photos during the inspection. While IL-OSHA cannot share the photos, the employer and/or employee can take their own photos and ask the inspector why they are taking a picture. During the walk around the inspector may look at:

The Building

Inspectors will look to ensure the building has: clean and sanitary conditions, no electrical hazards, safe walking and working surfaces, clear exits and exit paths, proper machine guarding, properly labeled chemicals, proper storage of flammable liquids, as well compliance with other health and safety regulations based on the specific building and building contents.

Apparatus

Inspectors will look at in-service apparatus to ensure they are in proper working order. Inspectors may pay special attention to apparatus that were converted for fire service use (surplus vehicle converted to a tanker/tender without proper baffling). Inspectors may also pay attention to fire apparatus that have been modified or altered in a way that may reduce or eliminate features or components designed by the manufacturer to ensure safety.

Note: Inspectors do not have the authority to require a fire department to bring an apparatus built according to an earlier National Fire Protection Association (NFPA) standard up to the current standard.

Note: Every emergency response vehicle in Illinois should have a current edition of the Emergency Response Guidebook. The Illinois Emergency Management Agency may have ERGs free of charge for fire departments. Contact your local regional office for more information.

Equipment

Inspectors will look at the overall condition of fire department equipment such as portable fire extinguishers, hand tools, electrical extension cords, extrication tools, life safety rope and accessories, portable powered equipment, appliances, etc.

Personal Protective Equipment

Personal protective equipment is the last line of defense against injury (p.77). Inspectors will want to look at in-service personal protective equipment for a select number of firefighters. Inspectors will also look at in-service SCBA to ensure they are clean, functional, ready for use, inspected at least monthly and maintained in accordance with manufacturer's recommendations. An inspector may ask an employee to demonstrate proper donning of their turnout gear and SCBA, go "on air" and explain the proper operation of the SCBA.

Employee Interviews

Inspectors have the right to talk to any employee privately during regular working hours or at other reasonable times during an inspection. The purpose of the private employee interview is to gather facts relevant to the inspection. Inspectors may ask the employee about training, fireground emergency procedures, and other aspects of department operations related to occupational safety and health.

Closing Conference

At the end of the inspection the inspector will conduct a closing conference with the employer and employee representatives. This may be in person or by telephone. During this conference the inspector will discuss the apparent violations and/or other issues found. The inspector will also discuss employer rights and responsibilities following an inspection. The closing conference provides employers and employees an opportunity to ask questions and seek clarification on any part of the inspection process.

Post-Inspection Process

After the on-site inspection the inspector may contact the employer to request additional records or documentation. It is important to note that, at this point in the process, any apparent violations noted by the inspector during the inspection are not official citations. Nonetheless, employers are encouraged to immediately begin correcting apparent violations. Once an inspector has completed their case file they will present it to their enforcement manager with recommendations as follows:

No violation letter: A letter stating no violations were found.

Hazard alert letter: A letter that makes recommendations in the best interests of health and safety with voluntary abatement.

Citation(s): A notice that details citations issued and a timeline for mandatory abatement.

Combination: A notice that contains citation(s) and a hazard alert letter.

The enforcement manager will review the inspection case file to determine if the recommended citations meet the standards required for issuance. In some cases, an enforcement manager may require additional citations to be issued based on evidence in the case file. In other cases, an enforcement manager may strike or re-classify a recommended citation. After IL-OSHA leadership approval, the highest ranking elected or appointed official will receive certified

mail correspondence from IL-OSHA. For a fire department this will usually be the city mayor or village president. For a fire district this will be the president of the board of trustees.

Once an employer has received a citation(s) they have 15 working days to dispute the citation(s). They can request an informal conference with IL-OSHA or file a formal contest. If they do not contest within the 15 working day period, the citations will become a final order without any option to appeal. The correspondence will detail the dispute process and provide a date when the cited hazards must be abated (fixed). If the employer feels they cannot complete abatement by the deadline, they can formally request a modification to the abatement date that will be taken under consideration.

Fire Department Training Requirements

The following section will cover minimum legal training requirements for Illinois fire departments. This section cannot possibly cover every IL-OSHA regulation that applies to fire department training, but it will cover training requirements that are most commonly associated with the fire service. For example, if a fire department performs confined space rescue (1910.146), they would be required to complete additional training to perform that activity. To find other potentially applicable training requirements not referenced in this section, see this publication from federal OSHA.

IL-OSHA inspectors will review fire department initial and annual training plans as well as training records. To assist an IL-OSHA inspector with verifying compliance, training records should be available for the previous three years and include:

- Dates and times of the training.
- The type of training: Classroom, hands-on, simulation, live fire, etc.
- The duty/function classification: quarterly interior firefighter, apparatus engineer, incident command, hazardous materials, water rescue, etc.
- The training objectives and a summary of the training.
- A reference to the location of the actual training content or lesson plan (PowerPoint, handout, textbook, etc.).
- Instructor name and qualification.
- Name of the members attending.

NOTE: Some training requirements are objective/performance based while others specify a minimum number of hours. Initial training is required in almost all cases and ongoing training may be required annually, quarterly, as identified, or at another frequency.

NOTE: Some standards mandate specific training topics and objectives while others simply state that training must take place.

NOTE: Some standards also require that the trainee also demonstrates competency in the training topics.

Training – 1910.120 Hazardous Waste Operations and Emergency Response

Link: Standard 1910.120
Initial training requirement: YES
Annual training requirement: YES
Other frequency: If lack of competency is observed

Introduction

Section (q) of OSHA standard 1910.120 contains requirements for emergency personnel that respond to hazardous materials incidents. Every public sector fire department has the potential to respond to a known or unknown hazardous materials incident. The levels of training required by this standard are based on the duties and functions to be performed by each member. The minimum training level is the first responder awareness level. Some fire departments may have members at higher levels such as operations, technician, specialist and on scene incident commander. If members operate at these levels, fire departments need to ensure they have had training and can demonstrate competency based on their level in accordance with 1910.120. Initial training shall take place before being permitted to respond to a hazardous materials incident.

First Responder Awareness Level 1910.120(q)(6)(i)

First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

(A) Understand hazardous substances are, and the risks associated with them in an incident.

(B) Understand the potential outcomes during an emergency when hazardous substances are present.

(C) Recognize the presence of hazardous substances in an emergency.

(D) Identify the hazardous substances, if possible.

(E) Understand the role of the awareness level individual in the FD emergency response plan including site security and control and the Emergency Response Guidebook.

(F) Realize the need for additional resources and make appropriate notifications.

NOTE: There is no minimum hour training requirement for this level. The Illinois Fire Service Institute offers an initial four-hour IL-OSHA compliant hazardous materials first responder training course online as well as a one-hour annual refresher course online at no charge to Illinois firefighters.

NOTE: Fire department members operating at this level shall **not** participate in offensive or defensive operations. They shall be capable of utilizing the Emergency Response Guidebook and notifying proper authorities.

First Responder Operations Level 1910.120(q)(6)(ii)

First responders at the operations level shall have at least **eight hours** of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level:

(A) Knowledge of the basic hazard and risk assessment techniques.

(B) Know how to select and use proper personal protective equipment provided to the first responder operational level.

(C) An understanding of basic hazardous materials terms.

(D) Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.

(E) Know how to implement basic decontamination procedures.

(F) An understanding of the relevant standard operating procedures and termination procedures.

NOTE: Fire department members operating at this level shall not participate in offensive operations. They shall be capable of responding in a defensive fashion and contain the release from a safe distance, keep it from spreading, and prevent exposures.

Hazardous Materials Technician 1910.120(q)(6)(iii)

First responders at the technician level shall have at least **twenty-four hours** of training equal to the operations level and have competency in the following areas:

(A) Know how to implement the employer's emergency response plan.

(B) Know the classification, identification and verification of known and unknown materials by using field survey instruments and equipment.

(C) Be able to function within an assigned role in the Incident Command System.

(D) Know how to select and use proper specialized chemical personal protective equipment provided to the hazardous materials technician.

(E) Understand hazard and risk assessment techniques.

(F) Be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.

(G) Understand and implement decontamination procedures.

(H) Understand termination procedures.

(I) Understand basic chemical and toxicological terminology and behavior.

NOTE: Fire department members operating at this level can assume an offensive role for the purpose of stopping the release. 1910.120 contains additional regulations for entry activities.

Hazardous Materials Specialist 1910.120(q)(6)(iv)

First responders at the specialist level shall have at least **twenty-four hours** of training equal to the technician level and have competency in the following areas:

(A) Know how to implement the local emergency response plan.

(B) Understand classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment.

(C) Know the state emergency response plan.

(D) Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.

(E) Understand in-depth hazard and risk techniques.

(F) Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.

(G) Be able to determine and implement decontamination procedures.

(H) Have the ability to develop a site safety and control plan.

(I) Understand chemical, radiological and toxicological terminology and behavior.

NOTE: Fire department members operating at this level can assume an offensive role that requires more directed or specific knowledge of various substances.

On Scene Incident Commander 1910.120(q)(6)(v)

Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least **twenty-four hours** of training equal to the first responder operations level and in addition have competency in the following areas:

(A) Know and be able to implement the employer's incident command system.

(B) Know how to implement the employer's emergency response plan.

(C) Know and understand the hazards and risks associated with employees working in chemical protective clothing.

(D) Know how to implement the local emergency response plan.

(E) Know of the state emergency response plan and of the Federal Regional Response Team.

(F) Know and understand the importance of decontamination procedures.

Trainers 1910.120(q)(7)

Trainers shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. National Fire Academy, or they shall have the training and/ or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.

Refresher Training 1910.120(q)(8)

Those employees who are trained shall receive annual refresher training of sufficient content and duration to maintain their competencies or shall demonstrate their competency in those areas at least yearly. A statement shall be made on the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

Training – 1910.132 Personal Protective Equipment

Link: Standard 1910.132
Initial training requirement: YES
Annual training requirement: Optional
Other frequency: If lack of competency is observed

The fire department is required to train all members that may be required to wear personal protective equipment before being allowed to perform work requiring the use of PPE. The training shall include:

(A) When PPE is necessary.

(B) What PPE is necessary.

(C) How to properly don/doff.

(D) How to adjust and wear PPE.

(E) The limitations of PPE.

(F) The proper care, maintenance, useful life and disposal of PPE.

When the fire department has reason to believe that a member who has already been trained does not have the understanding and skill required, the member shall be retrained.

Training – 1910.134 Respiratory Protection

Link: Standard 1910.134
Initial training requirement: YES
Annual training requirement: YES
Other frequency: If lack of competency is observed (additional situations below)

This standard applies to all members of a fire department that may be required to wear respiratory protection (most often an SCBA) as part of their duties and functions. Members that do not have duties and functions requiring the use of respiratory protection (i.e. exterior firefighters, support personnel, drivers) are exempt from this standard. IL-OSHA has no requirement for fire departments to engage in interior structural firefighting, however, if a department elects to engage in this activity it must administer a respiratory protection program compliant with the standard.

All fire departments are required to provide effective training to members who are required to use respirators. The training must be provided prior to requiring the employee to use a respirator. It also must be comprehensive, understandable, recur annually, and more often if necessary.

The employer shall ensure that each employee can **demonstrate knowledge** of at least the following:

(A) Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.

(B) What the limitations and capabilities of the respirator are.

(C) How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.

(D) How to inspect, put on and remove, use, and check the seals of the respirator.

(E) What the procedures are for maintenance and storage of the respirator.

(F) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.

(G) The general requirements of the department/district respiratory protection program.

(H) Training shall be conducted in a manner that is understandable to the employee.

(I) The employer shall provide the training prior to requiring the employee to use a respirator in the workplace.

Retraining shall be administered annually and when the following situations occur:

(A) Changes in the workplace or the type of respirator render previous training obsolete.

(B) Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill.

(C) Any other situation arises in which retraining appears necessary to ensure safe respirator use.

Training – 1910.156 Fire Brigades and 1910.157 Portable Fire Extinguishers

Link: Standard 1910.156 Standard 1910.157
Initial training requirement: YES
Annual training requirement: YES
Other frequency: Frequently enough so that each member can perform their assigned duties and functions satisfactorily and in a safe manner.

The fire department shall provide a policy that details the type, amount and frequency of training to be provided to members. This can be accomplished through an annual written training plan and calendar.

The department shall provide training and education for members based on the duties and functions they are expected to perform. An IL-OSHA inspector will interview the employer (chief and/or official) and employees to determine what duties and functions are

performed by the fire department as a whole and what levels individual members operate at. Members that perform more duties and functions require more training.

This training shall be provided before members engage in emergency activities. The Illinois Office of the State Fire Marshal Minimum Firefighter Training Guide (latest edition) provides an excellent initial training plan. IL-OSHA could use this guide as a measuring stick against a fire department's initial training program. Initial training must also be completed for additional duties and functions such as apparatus engineer, incident command, water rescue, technical rescue, etc.

Fire department leaders (officers) and training instructors shall be provided with training and education which is more comprehensive than that provided to the general membership. This requirement ensures the fire department prepares incident commanders for their critical responsibilities and provides high quality initial and ongoing training to fire department members.

The fire department shall ensure that training and education is conducted frequently enough so that each member is able to perform their assigned duties and functions satisfactorily and in a safe manner. All members shall be provided with training at least annually. While the standard says "at least annually" it also requires that training and education is frequent enough that members can perform satisfactorily and safely. Highly perishable skills and high-risk activities may require training more frequent than annually. For example, it would not be reasonable to expect firefighters to perform high-angle rope rescue activities satisfactorily and safely if they only train on these activities once per year.

Members expected to perform interior structural firefighting shall be provided with training at least quarterly. IL-OSHA's expectation for interior structural firefighting training is training that includes donning a full structural firefighting ensemble, donning SCBA and performing interior firefighting training activities "on air."

The fire department shall provide initial and annual training on portable fire extinguishers to include the general principles of fire extinguisher use and the hazards involved in incipient stage firefighting.

The quality of the training program shall be similar to those conducted by state level fire training schools. An example would be the Illinois Fire Service Institute. A fire department is not expected to have a live burn training facility and a full-time training staff. A fire department is expected to have a well-documented, quality training program with lesson plans, objectives, and a mix of classroom and hands-on training provided by knowledgeable instructors that ensures members perform their assigned duties and functions satisfactorily and safely.

Training – 1910.1030 Bloodborne Pathogens

Link: Standard 1910.1030
Initial training requirement: YES
Annual training requirement: YES
Other frequency: Additional training is required if changes in tasks or procedures affect occupational exposure.

All fire department members that respond to emergencies may come into contact with bloodborne pathogens and are required to receive training. Even if an agency does not perform emergency medical service functions, members may be exposed to bloodborne pathogens during rescue activities.

The training shall take place at the time of initial assignment and at least annually thereafter. Fire departments shall provide additional training if changes in tasks or procedures affect occupational exposure.

The minimum training program requirements are:

(A) An accessible copy of the regulatory text of this standard and an explanation of its contents.
(B) A general explanation of the epidemiology and symptoms of bloodborne diseases.

(C) An explanation of the modes of transmission of bloodborne pathogens.

(D) An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan.

(E) An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.

(F) An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment.

(G) Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.

(H) An explanation of the basis for selection of personal protective equipment.

(I) Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.

(J) Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.

(K) An explanation of the procedures to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.

(L) Information on the post exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident.

(M) An explanation of biohazard signs and labels.

(N) An opportunity for interactive questions and answers with the person conducting the training session.

The person conducting the training shall be knowledgeable in the subject matter above. Training records shall include:

(A) The dates of the training sessions.

(B) The contents or a summary of the training sessions.

(C) The names and qualifications of persons conducting the training.

(D) The names and job titles of all persons attending the training sessions. Training records shall be maintained for 3 years from the date on which the training occurred.

Sample Annual Training Plan

Introduction

The following sample, basic, annual training plan covers the minimum requirements for a fire department that provides the following services: interior structural firefighting, other fire suppression (car, field, etc.), hazardous materials response, and vehicle rescue/extrication. Departments that perform emergency medical response, water rescue, technical rescue, high-rise firefighting, fire boat response, dive rescue and/or other services would need to supplement this training plan with additional training for those duties and functions. Please remember, this sample plan only meets the minimum legal requirements. While this plan could be adopted and followed exactly, it is intended to be an example of a compliant plan and cover broad and widely recognized training topics. It is important to note that other local, state and/or federal agencies may mandate additional types of training (CPR, NIMS, sexual harassment). This sample plan only addresses training required by IL-OSHA.

The training content should be comprised of regularly reviewed and updated information, best practices, techniques, and tactics and strategies developed through real-world validation as well as science and research. Sources of training content may include but are not limited to: Illinois Office of the State Fire Marshal, Illinois Fire Service Institute, Underwriters Laboratories Firefighter Safety Research Institute, National Fire Protection Association, International Fire Service Training Association, International Association of Fire Chiefs, International Society of Fire Service Instructors, National Institute of Occupational Safety and Health, and the National Fire Academy.

The training should be of sufficient duration so that each member can demonstrate knowledge and competency in their assigned duties. There is no minimum specific time requirement for each topic. Some training topics could be combined so multiple topics are covered during one training session. For example, a training session could cover portable tools and equipment and then move into forcible entry training. Training should include significant hands-on activities so members can demonstrate individual, repeatable competency. The training should also include a review of the applicable department standard operating guideline or procedure.

Sample Annual Training Plan

1st Quarter

- Respiratory protection refresher training and fit testing in accordance with 1910.134.
- Quarterly interior firefighting training "on air" (SCBA emergency procedures, advancing attack lines)
- Ladders
- Basic ropes, webbing and knots
- Portable tools and equipment (powered and non-powered)
- Forcible entry
- Building construction and interior/exterior collapse in structural firefighting
- Fireground scene safety and hazard control
- Pumps training (apparatus operators)

2nd Quarter

- Hazardous materials response refresher training in accordance with 1910.120. Members need refresher training at their level of competency. Alternatively, fire departments can conduct a drill that allows members to demonstrate competency. If deficiencies are identified, refresher training is required. Include a component on special hazards in the community to meet 1910.156.
- Quarterly interior firefighting training "on air" (firefighter entrapment, self-rescue, search and rescue)
- Coordinated fireground ventilation and flow path management
- Communications and accountability
- Master streams, portable and apparatus mounted
- Fire extension, overhaul, salvage, and utilities
- Roadway safety, hazard control, and traffic incident management
- Water supply (apparatus operators)
- Attend external training on new equipment or new tactics/strategies (training officer/instructors)
- NIOSH report case study review (officers, incident commanders)

3rd Quarter

- Portable fire extinguisher training in accordance with 1910.157.
- Quarterly interior firefighting training "on air" (SCBA consumption and radio communication drill)
- Vehicle stabilization, rescue and extrication
- Vehicle fire hazards and tactics
- Thermal imaging and fire behavior
- Hydrant operations, 1.75" attack line, 2.5" attack line, appliances, foam
- New and/or special equipment (detection equipment, monitors, meters, etc.)
- Residential structure fire tactical considerations and case studies: hoarder homes and basements
- Apparatus driving, backing, blocking, placement (apparatus operators)
- Attend external training on incident action plans, building hazards, maydays (officers, incident commanders)

4th Quarter

- Bloodborne pathogen training in accordance with 1910.1030.
- Quarterly interior firefighting training (coordinated fire attack, rapid intervention, maydays)
- Field and ground cover fire hazards and tactics
- Firefighter near miss and NIOSH report reviews
- Other emergencies (natural gas, LPG, electrical, fire alarms, severe weather, railroad, technical rescue awareness)
- Company officer initial fire attack tactics, strategies, risk analysis and decision making
- Review of community target hazards
- Pumping multiple lines, foam operations, and review of appliances (apparatus operators)
- Attend external training on developments in fire science/behavior (training officer/instructor)
- Fireground incident simulations (officers, incident commanders)

Training – Frequently Asked Questions

Q. "Can our fire department training program be 100% online?"

A. No.

Q. "Can we utilize online training as a component of our training program?"

A. Yes. Online, self-paced computer-based training can be a valuable part of an effective fire department training program. However, the exclusive use of online training would not satisfy IL-OSHA training requirements unless that training contains supplemental interactive and hands-on components supervised by a qualified trainer(s). To be effective, training must result in mastery of the training material (for example, safe work practices or the safe and appropriate use of tools and personal protective equipment).

The opportunity for members to be able to ask questions of, and receive responses from, a qualified trainer(s), in a timely manner, is critical to effective training. Training with no interaction, or delayed or limited interaction, between the trainer and trainee may halt or negatively affect a trainee's ability to understand and/or retain the training material.

The provision of sufficient hands-on training is imperative because it allows a member to interact with equipment and tools in the presence of a qualified trainer(s), allows the member to learn or refresh their skills through experience, and allows the trainer to assess whether the trainees have mastered the proper techniques to perform their duties safely and satisfactorily.

Q. "Do you have an example of available online training that could supplement our hands-on training program?

A. Yes. There are several online training resources available to fire departments. Some of these resources have a cost and some are provided at no cost. The Illinois Fire Service Institute offers a variety of online courses. Many are offered at no cost to Illinois fire departments. The UL-Firefighter Safety Research Institute also offers their Fire Safety Academy at no cost. The National Fallen Firefighters Foundation Everyone Goes Home training section has a wealth of training content and resources as does the National Fire Academy.

Q. "Do Illinois Office of the State Fire Marshal (OSFM) certifications meet IL-OSHA training requirements?"

A. In most cases, a certificate from OSFM will exceed initial training requirements for that subject area. IL-OSHA requires at least annual refresher training for most training topics. If a member achieved OSFM certification in Vehicle and Machinery Operations three years ago but has not completed any vehicle rescue/extrication training in the past two years, the member (and by extension the fire department) would not be in compliance with the standard and the fire department could receive a citation under 1910.156(c)(2).

Q. "If a member fails to attend regularly scheduled trainings but still responds to emergencies can IL-OSHA cite the member?"

A. No. The Illinois Occupational Safety and Health Act does not provide for citing employees. It is the responsibility of the employer to ensure employees complete their training. If a member is not meeting training requirements set by the department to ensure minimum legal compliance the employer must ensure that member does not perform the duties and functions associated with the training deficiencies. In most cases, this will result in the member being directed to not respond to emergencies until they complete their training.

Q. "Does IL-OSHA certify training and issue certificates? Do fire instructors need to be certified?"

A. No. It is up to the employer to ensure that their training program is compliant with applicable standards enforced by IL-OSHA. Employers can utilize "in-house" training or external training through private or public organizations. Instructors need to have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.

Q. "Do all members have to be trained on SCBA and interior structural firefighting?"

A. No. IL-OSHA has no requirement for any fire department to perform interior structural firefighting, however, members that are designated to wear SCBA and perform interior structural firefighting need to be trained to ensure they can demonstrate proficiency with SCBA and perform interior structural firefighting operations in a safe and satisfactory manner.

Q. "Does IL-OSHA require firefighters to attend live fire training?"

A. No. IL-OSHA has no requirement for firefighters to attend live fire training. When conducted in accordance with trained instructors utilizing industry best practices at appropriate facilities, live fire training can be a very effective way to deliver hands-on training and verify competency. See this NIOSH publication for more information on recommendations for conducting live-fire training in acquired structures.

Q. "If two members pull a hose line during an emergency response can that be credited to training?"

A. No, however, after the emergency response activities have concluded, if the situation permits, members may conduct hands-on training activities if an instructor is present.

Q. "Can drills be utilized to meet training requirements?"

A. Yes, as long as drills are performed in a controlled environment (not during emergency responses) with oversight by an instructor and members that display lack of knowledge and/or proficiency are provided refresher training after the drill.

Q. "What are the minimum IL-OSHA training requirements for driving/operating fire apparatus?"

A. Licensure to drive vehicles in Illinois is regulated by the Illinois Secretary of State. Members that are designated to drive and operate apparatus must have training and education that is conducted frequently enough (at least annually) so that each member is able to drive and operate apparatus satisfactorily and in a safe manner.

Q. "What if I have additional questions about training?"

A. Contact IL-OSHA at DOL.Safety@illinois.gov or call 217-782-9386.

Injury and Illness Reporting and Recordkeeping

Introduction

This section will cover time-critical and annual reporting requirements as well as recordkeeping requirements for fire departments.

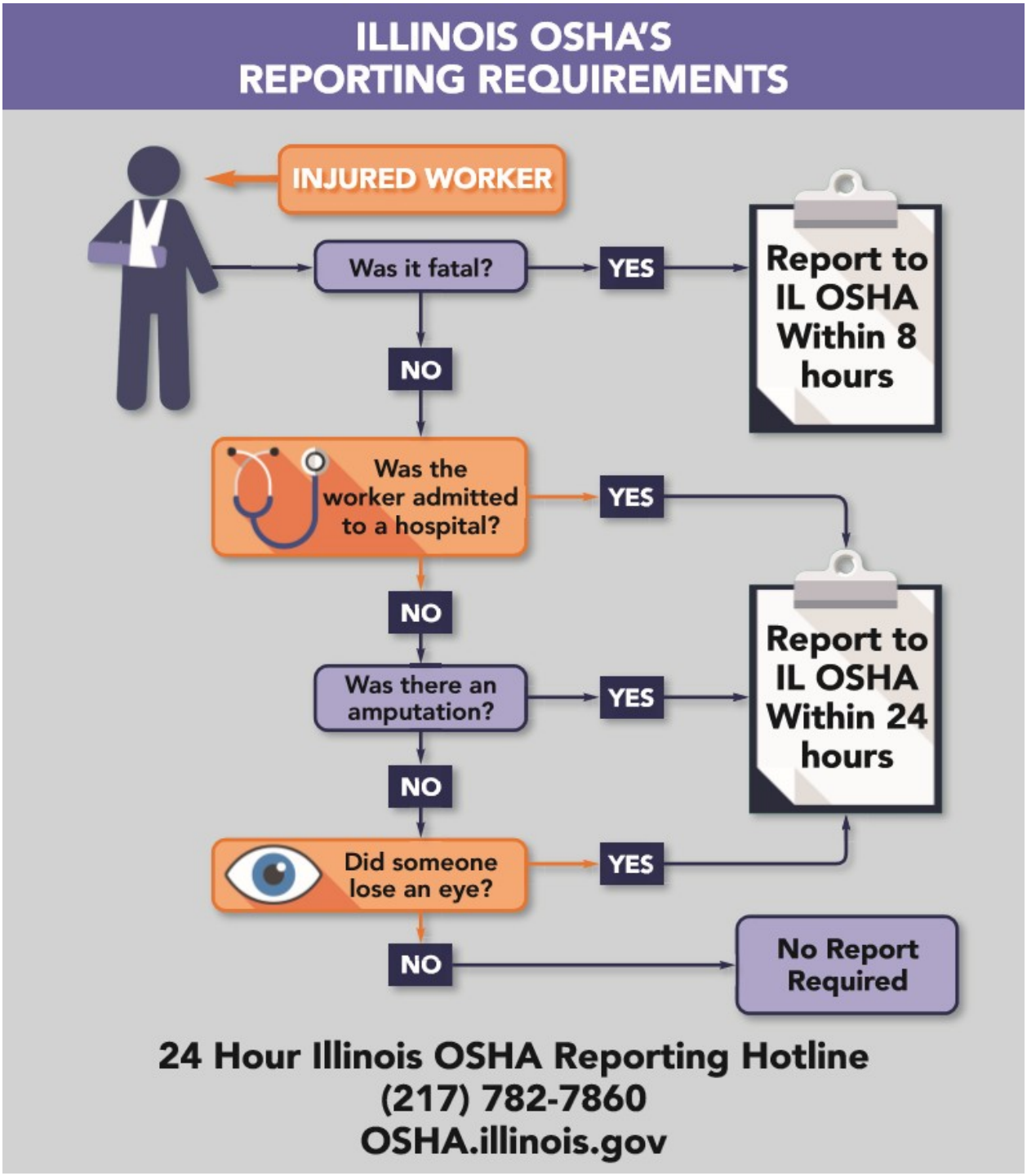
All public sector employers must report the death of any employee from a work-related incident within 8 hours and the in-patient hospitalization, or amputation, or loss of an eye within 24 hours by calling 217-782-7850. This line is staffed by Illinois Emergency Management Agency telecommunicators 24 hours a day. Hospitalization means that the employee was admitted. If an employee went to the emergency department and was released, there is no need to report.

Report incidents involving medical issues, such as a heart attack, that result in a fatality or severe injury. IL-OSHA will most likely gather additional information to determine if the medical issue is occupationally related.

Only report fatalities or hospitalizations that occur within 30 days after an incident. If an employer does not learn of a reportable incident at the time it occurs, once known, report it within 8 hours.

Be prepared to report the following for fatalities and/or severe injuries:

- The establishment name (fire department/district).
- The location, date and time of the incident.
- The number of fatalities and/or severe injuries (include names).
- A point of contact name and number.
- A brief description of the incident.



Link: IL-OSHA Reporting Requirements Infographic

Injury and Illness Recordkeeping

Illinois law requires all public sector employers to keep work-related injury and illness records. This must be kept at the establishment level. For instance, a city cannot maintain one injury/illness log and summary for the entire city. The logs and summaries must be maintained by each department: fire department, police department, street department, etc. Most fire districts can report as one establishment. Larger fire districts and fire departments that are large enough to have geographic battalions with multiple stations should report at the battalion level.

Recordkeeping requirements are contained in Subpart B of Title 56 Part 350 of the Illinois Administrative Rules. It is important to note that recording or reporting a work-related injury, illness or fatality does not mean that the employer or employee was at fault, that a standard or rule has been violated, or that the employee is eligible for workers' compensation or other benefits.

The required forms for documenting work-related deaths, injuries and illnesses are the OSHA 300 (Log of Injuries/Illnesses), the OSHA 300A (Summary of Injuries/Illnesses) and the OSHA 301 (Injury/Illness Incident Form). The IWCC Form 45 may be substituted for the OSHA 301 as long as the information is equivalent.

Link to OSHA 300 forms (pdf and excel)

Link to IWCC Form 45 (pdf)

Recording Criteria

Public employers must record a fatality, injury or illness that:

1) Is work-related (see section 350.270);
2) is a new case (see section 350.280); and
3) meets one or more of the general recording criteria (see section 350.290) or additional criteria such as (needlestick/sharps injuries see section 350.300) or (medical removal see section 350.310) or (occupational hearing loss see section 350.320) or (tuberculosis see section 350.330).

Employees include every person "in the service of" the fire department, regardless of pay status, and includes elected and appointed officials such as board members.

Posting of Annual Summary

At the end of each calendar year the fire department must review the injuries/illnesses on the OSHA 300 and then create, certify and post the annual summary (OSHA 300A). Employers are required to put the appropriate NAICS code on the summary. The NAICS code for fire departments is 922160. **This annual summary (prior year) must be posted at each fire station no later than February 1st and until April 30th.** See section 350.370 for more information.

Records Retention

Save all injury/illness forms for at least five years (see section 350.380).

Electronic Reporting

In 2017, federal OSHA implemented an electronic OSHA 300A submission requirement for employers that met certain criteria. IL-OSHA adopted this requirement with criteria specific to public sector employers in Illinois.

Fire departments and fire districts with 20 or more employees are required to electronically report their OSHA 300A summary through the federal OSHA Injury Tracking Application (ITA) online portal. Remember, the OSHA 300A summary needs to be posted and submitted at the station level for small departments, and at the battalion level for large departments that have several stations per battalion. Electronic reporting must be completed by every March 2nd for the previous calendar year.

Federal OSHA has created a resource page for more information on electronic reporting. Employers having technical difficulties with the online submission portal can complete a help request form. For specific recordkeeping/reporting questions, email IL-OSHA at DOL.Safety@illinois.gov.

Below are the most commonly cited recordkeeping, reporting and posting standards.

2015-2020 Fire Department Inspections – Commonly Cited Recordkeeping, Reporting and Posting Standards

Standard	Language
56 IL Admin Code 350.180 - Posting	Posting of Citations (b) Each citation, or a copy, shall remain posted until the violation has been abated, or for 3 working days, whichever is later. The filing by the employer of a notice of intention to contest under Section 350.190 shall not affect the posting responsibility under this Section unless and until the Administrative Law Judge issues a final order vacating the citation.
56 IL Admin Code 350.260 - Recording	Recording Criteria (a) Basic Requirement: Every public employer that is required by this Part to keep records of fatalities, injuries and illnesses must record each fatality, injury and illness that: 1) is work-related; 2) is a new case; and 3) meets one or more of the general recording criteria of Section 350.290 or or the recording criteria applying to specific cases in Sections 350.300 through 350.330.

Standard	Language
56 IL Admin Code 350.410 - Reporting	Reporting Fatalities and Hospitalization Incidents to the Illinois Department of Labor (a) Basic Requirement. Within 8 hours after the death of any employee from a work-related incident, the employer shall orally report the fatality by telephone 24/7 Notification 217-782-7860. Within 24 hours after the in-patient hospitalization of one or more employees, or an employee's amputation, or an employee's loss of an eye, as a result of a work-related incident, the employer shall report the in-patient hospitalization, amputation or loss of an eye.
56 IL Admin Code 350.420 - Providing records	Providing Records to Government Representatives (a) Basic Requirement. When an authorized government representative asks for the records kept under Subpart B, provide copies of the records within 4 business hours.

Compliance

OSHA Standards

The Illinois Occupational Safety and Health Act adopted the same occupational safety and health standards enforced by federal OSHA on private employers in Illinois. These standards are in the Code of Federal Regulations (CFR) and can be easily referenced at www.OSHA.gov

Most fire department activities fall under general industry standards that are contained in 29 CFR Part 1910. Standards are subdivided as follows:

Subdivision Naming Convention	Example
Title	29
Part	1910
Section	305
Paragraph	(j)
Subparagraph	(6)
Item	(ii)
Subitem	(A)
Subitem 2	(2)

The example above is related to electrical safety: *"1910.305(j)(6)(ii)(A)(2) Interrupting the maximum continuous load current of each capacitor, capacitor bank, or capacitor installation that will be switched as a unit;"*

Sections 301-399 contain subpart S, Electrical, of part 1910. Section 305 is about wiring methods, components and equipment for general use. Paragraph (j) is about equipment for general use, subparagraph (6) is specific to capacitors, item (ii) discusses requirements for capacitors installed on circuits operating at more than 600 volts, subitem (A) is about group operated switch capabilities and subitem (2) explains the switch must be capable of interrupting the maximum continuous load.

The standard starts out broad but can get extremely detailed. This naming convention is used to organize the standards and allows inspectors to use a naming convention to cite the associated language and violation.

Illinois Administrative Rule Standards

Illinois OSHA also cites from applicable Illinois Administrative Rules relating to health and safety. These rules are developed from the Illinois Occupational Safety and Health Act. Most citations that use these rules are due to recordkeeping or reporting requirements as noted in the previous section.

General Duty Clause 820 ILCS 219/20(a)

Illinois OSHA also cites directly from the Illinois Occupational Safety and Health Act. Under certain circumstances and conditions, a citation can be issued from the Illinois Compiled Statutes (ILCS), 820 ILCS 219/20(a). It states: "Every public employer must provide reasonable protection to the lives, health, and safety of its employees and must furnish to each of its employees employment and a workplace which are free from recognized hazards that cause or are likely to cause death or serious physical harm to its employees." This language is also called the general duty clause. Even if there is no applicable standard, employers have a general duty to protect their employees from hazards.

National Fire Protection Association Standards

There is a great deal of confusion in the fire service between OSHA standards and NFPA standards. Apart from use with a general duty violation (see previous paragraph), IL-OSHA cannot directly cite a fire department for violating an NFPA standard unless the standard is incorporated by reference into an OSHA standard. The list of consensus standards incorporated by reference into OSHA general industry standards is located in 1910.6.

Select OSHA Standards Applicable to Fire Departments

This guide cannot address every OSHA standard that may be applicable to fire departments. It will address standards that are commonly encountered during an IL-OSHA inspection and provide guidance on how to comply with the standards. Training requirements within the listed standards are covered in the previous section, Fire Department Training Requirements.

1910.156 Fire Brigades Standard

1910.156(b)(1) requires an organizational statement. At a minimum, fire departments must have written documentation that covers:

- Establishing the existence of the fire department.
- The basic organizational structure of the fire department.
- The type, amount and frequency of training to be provided to members (initial and annual training plans, calendars, memos or policies).
- Expected number of members (department roster).
- Functions the fire department performs.

1910.156(b)(2) requires the employer to assure that members assigned to do interior structural firefighting are physically capable of performing assigned duties during emergencies. This can be done through a medical physical or a physical performance test. While there is no periodic time interval mentioned, employers could do this annually. Members with known heart disease, epilepsy, emphysema are not permitted to participate in emergency response unless a physician's certificate is provided.

1910.156(c)(4) requires the employer to inform members about special hazards to which they may be exposed during emergencies. The employer shall develop written procedures that describe actions to be taken in situations involving special hazards. This can be addressed in the form of standard operating procedures/guidelines that details response actions to different types of incidents.

1910.156(d) requires the employer to maintain and inspect, at least annually, firefighting equipment to assure the safe operational condition of the equipment. This includes but is not limited to equipment such as: hose, ladders (ground and aerial), pumps, apparatus. Portable fire extinguishers and SCBA (additional requirements for SCBA will be covered in 1910.134) need to be inspected at least monthly. All inspections need to be documented (electronically or paper) so an inspector can verify the inspection has been performed. While IL-OSHA cannot require a fire department to perform a full NFPA certification test, IL-OSHA would question a fire department that inspected their 100ft. aerial device "in-house." Fire equipment that is unserviceable must be removed from service.

1910.156(e)(1) covers personal protective equipment. PPE shall be provided at no cost to the employee. The appropriate PPE shall be worn during interior structural firefighting. Structural firefighting PPE shall meet NFPA 1971. NFPA 1971 has been incorporated by reference into 1910.156. NOTE: IL-OSHA does not automatically cite for structural firefighting PPE that is over 10 years old. The 10-year date is contained in NFPA 1851. NFPA 1851 has not been incorporated by reference although compliance with NFPA 1851 could be considered a best practice.

1910.156(f) covers respiratory protection. Most requirements for respiratory protection are covered in 1910.134. 1910.156(f)(2)(i) requires an SCBA service life indicator to sound an alarm when rated service time reaches 20-25%.

2015-2020 Fire Department Inspections – Commonly Cited 1910.156 Standards

Standard	Language
1910.156(b)(1) - Organizational Statement	Organizational statement. The employer shall prepare and maintain a statement or written policy which establishes the existence of a fire brigade; the basic organizational structure; the type, amount, and frequency of training to be provided to fire brigade members; the expected number of members in the fire brigade; and the functions that the fire brigade is to perform at the workplace. The organizational statement shall be available for inspection by the Assistant Secretary and by employees or their designated representatives.

Standard	Language
1910.156(c)(1) - Training	The employer shall provide training and education for all fire brigade members commensurate with those duties and functions that fire brigade members are expected to perform. Such training and education shall be provided to fire brigade members before they perform fire brigade emergency activities. Fire brigade leaders and training instructors shall be provided with training and education which is more comprehensive than that provided to the general membership of the fire brigade.
1910.156(c)(2) - Training	The employer shall assure that training and education is conducted frequently enough to assure that each member of the fire brigade is able to perform the member's assigned duties and functions satisfactorily and in a safe manner so as not to endanger fire brigade members or other employees. All fire brigade members shall be provided with training at least annually. In addition, fire brigade members who are expected to perform interior structural fire fighting shall be provided with an education session or training at least quarterly.
1910.156(d) - Equipment inspection	Fire fighting equipment. The employer shall maintain and inspect, at least annually, fire fighting equipment to assure the safe operational condition of the equipment. Portable fire extinguishers and respirators shall be inspected at least monthly. Fire fighting equipment that is in damaged or unserviceable condition shall be removed from service and replaced.
1910.156(e)(3)(ii) - Structural PPE	The performance, construction, and testing of fire-resistive coats and protective trousers shall be at least equivalent to the requirements of the National Fire Protection Association (NFPA) standard NFPA No. 1971-1975, "Protective Clothing for Structural Fire Fighting," which is incorporated by reference as specified in Sec. 1910.6, (See Appendix D to Subpart L) with the following permissible variations from those requirements: (A) Tearing strength of the outer shell shall be a minimum of 8 pounds (35.6 N) in any direction when tested in accordance with paragraph (2) of Appendix E; and (B) The outer shell may discolor but shall not separate or melt when placed in a forced air laboratory oven at a temperature of 500 deg. F (260 deg. C) for a period of five minutes. After cooling to ambient temperature and using the test method specified in paragraph (3) of Appendix E, char length shall not exceed 4.0 inches (10.2 cm) and after-flame shall not exceed 2.0 seconds.

1910.132 Personal Protective Equipment Standard

1910.132(a) requires that PPE shall be provided, used and maintained in a sanitary and reliable condition.

1910.132(b) requires employers to be responsible to assure employee-owned PPE is adequate, maintained and sanitary. Employers are not required to allow employee-owned PPE. Fire departments commonly allow members to use their own PPE to include gloves, boots, helmets and other items. If this practice is authorized, the employer must be vigilant to verify the PPE is adequate and maintained. As an alternative, fire departments can adopt a policy that prohibits employee owned PPE and requires members to only utilize department issued PPE.

1910.132(d) requires the employer to perform a hazard assessment. IL-OSHA's expectation is that the fire department provides a written hazard assessment that provides required PPE based on the incidents the fire department responds to and the services they provide. An example of a simple fire department hazard assessment is below. This assessment should be integrated into fire department standard operating procedures/ guidelines. IL-OSHA has created a sample hazard assessment in Word format.

1910.132(e) states that defective or damaged PPE shall not be used.

Sample Fire Department Hazard Assessment (1910.132(d)(2))
Certified by Chief Lee on 4-1-2020 signed: *Chief Lee*

Incident Type	Possible Hazards	Required PPE
Structure fire (exterior)	Heat, fall, struck-by, respiratory	Full structural firefighting gear: Helmet, hood, coat, pants, gloves, boots. As needed: Eye protection, SCBA
Structure fire (interior)	Heat, fall, struck-by, respiratory	SCBA and full structural firefighting gear.
Structure fire (overhaul)	Heat, fall, struck-by, respiratory	SCBA and full structural firefighting gear. Members remain on air until atmosphere is determined safe through monitoring and incident command.
Alarm sounding, smell of smoke, LPG, natural gas, etc.	Heat, fall, struck-by, respiratory	Full structural firefighting gear.

Incident Type	Possible Hazards	Required PPE
Grass/brush/ wildland fire	Heat, fall	Wildland firefighting gear or full structural firefighting gear. Chainsaw use requires helmet, eye protection, gloves, and full structural firefighting gear or chaps. Winch use requires helmet, eye protection and gloves
Vehicle fire	Heat, struck-by, crush	SCBA and full structural firefighting gear. Don class 3 vest if not directly involved in suppression and after extinguishment.
Motor vehicle incident	Struck-by, crush	Full structural firefighting gear, eye protection, extrication gloves, class 3 vest
Static water/Ice rescue	Drowning	Members do NOT wear structural firefighting gear. Members within 10 feet of water wear a PFD. Offensive operations require the use of a water/ice rescue suit with tie off to land based support team.
Swift water rescue	Drowning	Members do NOT wear structural firefighting gear. Members within 10 feet of water wear a PFD. Members do NOT perform offensive operations. Call MABAS 99 team.

Incident Type	Possible Hazards	Required PPE
Rope rescue	Fall, struck-by	Support personnel will wear station wear or firefighting gear, helmet and work gloves (do not wear structural or extrication gloves) Operations and technician level members will wear appropriate PPE to include rope rescue gloves, helmet, eye protection and harness. Members within 10 feet of vertical fall hazard wear Juneau lines.
Confined space rescue	Fall, struck-by, respiratory	Same as rope rescue except operations and technician level members will also wear SCBA. Members within 10 feet of vertical fall hazard wear Juneau lines.
Trench rescue	Fall, crush	Support personnel will wear station wear or firefighting gear. Members to NOT perform offensive operations. Call MABAS 99 team.
Hazardous Materials	Toxic, corrosive, radioactive	Awareness level members do not enter the hot or warm zone. Operations and technician level members wear PPE selected by technician level or above qualified members based on an assessment of the hazardous material.
EMS (normal exposure)	Bloodborne pathogens	Station wear, eye protection and nitrile gloves
EMS (high exposure such as deliveries or severe trauma)	Bloodborne pathogens	Station wear, face shield, nitrile gloves and disposable gown.

Incident Type	Possible Hazards	Required PPE
EMS (very high exposure such as performing aerosol generating procedures on infectious disease patients)	Bloodborne and aerosolized pathogens	Tyvek suit or equivalent (if equipped), nitrile gloves, googles, face shield and minimum N95 APR.
Other emergencies	Unknown	Members will wear PPE at the direction of the officer in charge/incident commander. Officers in charge and incident commanders will always seek a higher level of protection than may be necessary and then downgrade as circumstances dictate.
Station, tool, vehicle maintenance	Struck-by, crush	Eye protection, work gloves, coveralls

2015-2020 Fire Department Inspections Commonly Cited 1910.132 Standards

Standard	Language
1910.132(d)(1) - Hazard assessment	The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the employer shall: (i) Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment; (ii) Communicate selection decisions to each affected employee; and, (iii) Select PPE that properly fits each affected employee. Note: Non-mandatory appendix B contains an example of procedures that would comply with the requirement for a hazard assessment.

1910.133 Eye and Face Protection

1910.133(a)(1) requires employers to ensure each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from: flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation. Eye and face protection must meet ANSI standard Z87.1. Fire departments must ensure their members are wearing eye protection that is rated and marked "ANSI Z87.1."

1910.134 Respiratory Protection Standard

This standard is very detailed and requires employers to implement a written respiratory protection plan. Components of the plan include but are not limited to: selection of respirators, training, fit testing, medical evaluations and program evaluation. Rather than detailing the standard here, IL-OSHA has created a sample, fire department specific respiratory protection plan. The sample plan includes a ten-step outline to implement a fire department respiratory protection program, guidance about medical evaluations and a compliant sample plan that can be edited (MS Word format) and adopted by fire departments. It is important to note that the plan is configured for SCBA respirators and does not include N95 or other respirators. Other respirators could easily be added to the plan.

1910.134(g)(3) and 1910.134(g)(4) together contain requirements that are more commonly known in the fire service as "two-in, two-out." The following is required when engaging in interior structural firefighting to comply with "two-in, two-out."

- Prior to personnel entering the structure, at least two personnel (with SCBA) must be on scene, outside of the structure. They must be trained and equipped to provide effective emergency rescue. One of the individuals outside may be assigned to an additional role, so long as they are able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter at the incident.
- At least two personnel (with SCBA) enter the structure. They must remain in visual or voice contact at all times.

NOTE: The standard does not prohibit firefighters from performing emergency rescue (lifesaving) activities before four firefighters are assembled.

NOTE: This is the minimum legal standard. The Phoenix Fire Department evaluated their rapid intervention team procedures after the loss of Firefighter Brett Tarver in 2001. Over 200 rapid intervention drills were performed. Among several findings, they identified, (1) a team of twelve firefighters is needed to rescue one firefighter, (2) one in five rapid intervention team members will get into some type of trouble during the mission, (3) a 3000psi SCBA cylinder has 18.7 minutes of air (+/- 30%).

2015-2020 Fire Department Inspections – Commonly Cited 1910.134 Standards

Standard	Language
1910.134(c)(1) - Respiratory protection program	In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use. The employer shall include in the program the following provisions of this section, as applicable: (i) Procedures for selecting respirators for use in the workplace; (ii) Medical evaluations of employees required to use respirators; (iii) Fit testing procedures for tight-fitting respirators; (iv) Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations; (v) Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators; (vi) Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators; (vii) Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations; (viii) Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and (ix) Procedures for regularly evaluating the effectiveness of the program.

Standard	Language
1910.134(e)(1) - Medical evaluations	General. The employer shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. The employer may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.
1910.134(f)(1) - Fit testing	The employer shall ensure that employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this paragraph.
1910.134(f)(2) - Fit testing	The employer shall ensure that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.
1910.134(h)(1) - Clean respirators	Cleaning and disinfecting. The employer shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. The employer shall ensure that respirators are cleaned and disinfected using the procedures in Appendix B-2 of this section, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators shall be cleaned and disinfected at the following intervals: (i) Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition; (ii) Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals; (iii) Respirators maintained for emergency use shall be cleaned and disinfected after each use; and (iv) Respirators used in fit testing and training shall be cleaned and disinfected after each use.
1910.134(h)(3)(i)(B) - Respirator inspection and maintenance	All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use. NOTE: This is usually cited when a department fails to perform annual flow testing on their SCBA and the manufacturer recommends annual flow testing. This can also be cited for failing to inspect respirators at least monthly.

Standard	Language
1910.134(h)(3)(iii) - Cylinders at 90%+	In addition to the requirements of paragraphs (h)(3)(i) and (ii) of this section, self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. The employer shall determine that the regulator and warning devices function properly.
1910.134(i)(1)(ii) - Breathing air	Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include: (A) Oxygen content (v/v) of 19.5-23.5%; (B) Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; (C) Carbon monoxide (CO) content of 10 ppm or less; (D) Carbon dioxide content of 1,000 ppm or less; and (E) Lack of noticeable odor.
1910.134(i)(4)(i) - Cylinder testing	Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 180). NOTE: This is usually cited when a cylinder(s) is found to be out of date for hydrostatic testing or has expired (based on date of manufacture) and is still in use.
1910.134(k)(1) - Training	The employer shall ensure that each employee can demonstrate knowledge of at least the following: (i) Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator; (ii) What the limitations and capabilities of the respirator are; (iii) How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions; (iv) How to inspect, put on and remove, use, and check the seals of the respirator; (v) What the procedures are for maintenance and storage of the respirator; (vi) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and (vii) The general requirements of this section.
1910.134(k)(3) - Training	The employer shall provide the training prior to requiring the employee to use a respirator in the workplace.

Frequently Asked Questions – 1910.134 Standards

Q. "As an interior firefighter that wears an SCBA, can I have facial hair?"

A. There can be no facial hair that comes between the sealing surface of the 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.

Q. "Can fire departments administer fit tests?"

A. 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.

Q. "When I pass the fit test, doesn't this mean I am medically cleared to wear an SCBA?"

A. No. These are different concepts. A fit test confirms that air does not leak into the facepiece. This is required upon 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 and is required before fit testing and respirator use. See IL-OSHAs sample respiratory protection plan for more information.

Q. "Can an SCBA facepiece be used by more than one person?"

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

Q. "My SCBA cylinder bottle was manufactured in 2003, is it expired?"

A. Most likely, yes. SCBA must be maintained in accordance with manufacturer's recommendations and in their NIOSH approved configuration. Most bottles are manufactured under a specific U.S. Department of Transportation Special Permit. The permit number is listed on the bottle. The permit document specifies the testing and maintenance conditions for the cylinder. In most cases, a bottle expires 15 years after the date of manufacture and must be hydrostatically tested every five years. There are exceptions and newer bottles advertised as "30-year" bottles. Contact IL-OSHA for additional information.

Q. "I use MSA at employer 1 and Scott at employer 2, SCBA are very similar so can SCBA training be generic?"

A. No. SCBA training must be specific to the make and model of respirator (SCBA).

Q. "I checked my SCBA at the beginning of my shift. It is at 3500psi (4500psi bottle), that is still plenty of air, right?"

A. Wrong. Cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended full pressure level.

Q. "I checked my SCBA at the beginning of my shift. The heads-up display (HUD) is dead but the rest of the pack works so that is no problem, right?"

A. Wrong. SCBA must be maintained in accordance with manufacturer's recommendations.

1910.120 Hazardous Waste Operations and Emergency Response Standard

This standard details requirements for responding to emergencies involving hazardous materials. Every fire department in the state has the potential to respond to a hazardous materials emergency and members need to be trained to the awareness level at a minimum. **Departments that only operate at the awareness level cannot perform any type of offensive or defensive operations.** This standard contains some of the most specific requirements for emergency scene activities of any standard applicable to fire departments.

1910.120(q)(3)(i) requires the incident commander at a hazardous materials emergency to implement a site-specific Incident Command System (ICS). Responders and their communications shall be coordinated and controlled through the ICS.

NOTE: Activities beyond the awareness level (offensive or defensive) require an incident commander that is trained in accordance with "On scene incident commander" in 1910.120(q)(6)(v). One requirement in this section mandates the incident commander has training equal to the first responder operations level.

1910.120(q)(3)(ii) and (iii) requires the incident commander to identify hazardous materials, perform a scene size-up, implement appropriate actions and select appropriate PPE. Although the incident commander is responsible for this, it is completely acceptable and prudent to receive advice and consult with hazardous materials technicians, specialists or other resources that may have specialized knowledge of the hazardous material or situation.

1910.120(q)(3)(v)-(iv) requires the incident commander to limit the number of emergency personnel at the scene. Fire departments should utilize staging areas and designate control zones to reduce personnel in hazard zones to those actively performing emergency operations. Use of the buddy system is also required (two or more). Back-up personnel are required to be standing by to provide immediate rescue or assistance. An ambulance operating at the basic life support level or higher is required to be standing by.

1910.120(q)(3)(vii)-(viii) requires the incident commander to designate a safety officer who is knowledgeable of the operations, is responsible to identify and evaluate hazards and provides direction to the safety of operations. The safety officer has the authority to alter, suspend or terminate activities that are immediately dangerous to life and health or involve an imminent danger.

1910.120(q)(3)(ix) requires the incident commander to implement appropriate decontamination procedures.

1910.120(q)(9)(i) requires members of a designated HAZMAT team to receive a baseline physical examination and medical surveillance. Subsequent examinations must take place every twelve months unless the physician approves a longer interval (not greater than biennially). See paragraph (f) of 1910.120 for additional medical requirements.

1910.120(q)(10) discusses chemical protective clothing requirements. This redirects to paragraph (g) of 1910.120. Paragraph (g) also discusses PPE test methods.

1910.120 Appendix A Personal protective equipment test methods (non-mandatory)

1910.120 Appendix B General description and discussion of the levels of protection and protective gear (non-mandatory) This appendix describes level A-D protective gear.

2015-2020 Fire Department Inspections – Commonly Cited 1910.120 Standards	
Standard	Language
1910.120(q)(6)(i) - Training	First responder awareness level. First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas: (A) An understanding of what hazardous substances are, and the risks associated with them in an incident. (B) An understanding of the potential outcomes associated with an emergency created when hazardous substances are present. (C) The ability to recognize the presence of hazardous substances in an emergency. (D) The ability to identify the hazardous substances, if possible. (E) An understanding of the role of the first responder awareness individual in the employer's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook. (F) The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.
1910.120(q)(8)(i) - Training	Those employees who are trained in accordance with paragraph (q)(6) of this section shall receive annual refresher training of sufficient content and duration to maintain their competencies, or shall demonstrate competency in those areas at least yearly.

1910.1030 Bloodborne Pathogens Standard

This standard is very detailed and requires employers to implement a written exposure control plan. All fire department members that respond to emergencies may be exposed to bloodborne pathogens. This includes departments that do not provide emergency medical services. Components of the plan include but are not limited to: an exposure determination, recordkeeping, hepatitis B vaccinations or declinations, and training. Rather than detailing the standard here, IL-OSHA has created a sample, fire department specific exposure control plan. The sample plan can be edited (MS Word format) and adopted by fire departments.

All members that respond to emergencies must have proof of Hepatitis B vaccination or a declination on file. Declinations must use the exact language contained in Appendix A of 1910.1030.

2015-2020 Fire Department Inspections – Commonly Cited 1910.1030 Standards	
Standard	Language
1910.1030(c)(1)(i) - Exposure control plan	Each employer having an employee(s) with occupational exposure as defined by paragraph (b) of this section shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure.
1910.1030(c)(1)(iv) - Plan review	The Exposure Control Plan shall be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. The review and update of such plans shall also: (A) Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens; and (B) Document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.
1910.1030(f)(1)(i) - Hep B vaccinations	The employer shall make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident.
1910.1030(f)(1)(ii) - Hep B vaccinations	The employer shall ensure that all medical evaluations and procedures including the hepatitis B vaccine and vaccination series and post-exposure evaluation and follow-up, including prophylaxis, are: (A) Made available at no cost to the employee; (B) Made available to the employee at a reasonable time and place; (C) Performed by or under the supervision of a licensed physician or by or under the supervision of another licensed healthcare professional; and (D) Provided according to recommendations of the U.S. Public Health Service current at the time these evaluations and procedures take place, except as specified by this paragraph (f).

Standard	Language
1910.1030(f)(2)(i) - Hep B vaccinations	Hepatitis B vaccination shall be made available after the employee has received the training required in paragraph (g)(2)(vii)(I) and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons.
1910.1030(f)(2)(iv) - Hep B vaccinations	The employer shall assure that employees who decline to accept hepatitis B vaccination offered by the employer sign the statement in appendix A.
1910.1030(g)(2)(i) - training	The employer shall train each employee with occupational exposure in accordance with the requirements of this section. Such training must be provided at no cost to the employee and during working hours. The employer shall institute a training program and ensure employee participation in the program.
1910.1030(g)(2)(iv) - training	Annual training for all employees shall be provided within one year of their previous training.

Illinois Fire Department Commonly Cited Standards (Miscellaneous)

This section provides fire departments with direct insight on miscellaneous commonly cited standards from inspections between 2015-2020. Fire departments can perform a self-audit to see if they would be cited for violating any of these standards.

Walking-Working Surfaces

Standard	Language
1910.22(a)(1) - Clean conditions	All places of employment, passageways, storerooms, service rooms, and walking-working surfaces are kept in a clean, orderly, and sanitary condition.
1910.22(a)(3) - Surface hazards	Walking-working surfaces are maintained free of hazards such as sharp or protruding objects, loose boards, corrosion, leaks, spills, snow, and ice.

Standard	Language
1910.23(c)(1) - Ladders	Portable ladders. The employer must ensure: Rungs and steps of portable metal ladders are corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize the possibility of slipping;
1910.28(b)(1)(i) - Fall protection	Except as provided elsewhere in this section, the employer must ensure that each employee on a walking-working surface with an unprotected side or edge that is 4 feet (1.2 m) or more above a lower level is protected from falling by one or more of the following: Guardrail systems; Safety net systems; or Personal fall protection systems, such as personal fall arrest, travel restraint, or positioning systems.
1910.28(b)(11)(ii) - Stairs	Each flight of stairs having at least 3 treads and at least 4 risers is equipped with stair rail systems and handrails as follows: Reference: Table D-2 Stairway Handrail Requirements in 1910.28(b).

Exit Routes and Emergency Planning

Standard	Language
1910.37(a)(3) - Exits	Exit routes must be free and unobstructed. No materials or equipment may be placed, either permanently or temporarily, within the exit route. The exit access must not go through a room that can be locked, such as a bathroom, to reach an exit or exit discharge, nor may it lead into a dead-end corridor. Stairs or a ramp must be provided where the exit route is not substantially level.
1910.37(a)(4) - Emergency systems	Safeguards designed to protect employees during an emergency (e.g., sprinkler systems, alarm systems, fire doors, exit lighting) must be in proper working order at all times.
1910.37(b)(2) - Exits	Each exit must be clearly visible and marked by a sign reading “Exit.”

Hazardous Materials	
Standard	Language
1910.101(b) - Compressed gases	"Compressed gases." The in-plant handling, storage, and utilization of all compressed gases in cylinders, portable tanks, rail tankcars, or motor vehicle cargo tanks shall be in accordance with Compressed Gas Association Pamphlet P-1-1965, which is incorporated by reference as specified in Sec. 1910.6. NOTE: This is usually cited when stored compressed gas cylinders are not secured.
Medical and First Aid	
Standard	Language
1910.151(c) - Eye wash	Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.
Fire Protection	
Standard	Language
1910.157(c)(4) - Fire extinguishers	The employer shall assure that portable fire extinguishers are maintained in a fully charged and operable condition and kept in their designated places at all times except during use.
1910.157(e)(2) - Fire extinguishers	Portable extinguishers or hose used in lieu thereof under paragraph (d)(3) of this section shall be visually inspected monthly.
1910.157(e)(3) - Fire extinguishers	The employer shall assure that portable fire extinguishers are subjected to an annual maintenance check. Stored pressure extinguishers do not require an internal examination. The employer shall record the annual maintenance date and retain this record for one year after the last entry or the life of the shell, whichever is less. The record shall be available to the Assistant Secretary upon request.
1910.159(c)(10) - Fire sprinklers	Sprinkler spacing. The employer shall assure that sprinklers are spaced to provide a maximum protection area per sprinkler, a minimum of interference to the discharge pattern by building or structural members or building contents and suitable sensitivity to possible fire hazards. The minimum vertical clearance between sprinklers and material below shall be 18 inches (45.7 cm).

Machinery and Machine Guarding	
Standard	Language
1910.215(a)(4) - Grinding machines	Work rests. On offhand grinding machines, work rests shall be used to support the work. They shall be of rigid construction and designed to be adjustable to compensate for wheel wear. Work rests shall be kept adjusted closely to the wheel with a maximum opening of one-eighth inch to prevent the work from being jammed between the wheel and the rest, which may cause wheel breakage. The work rest shall be securely clamped after each adjustment. The adjustment shall not be made with the wheel in motion.
1910.215(b)(9) - Safety guards	Exposure adjustment. Safety guards of the types described in Subparagraphs (3) and (4) of this paragraph, where the operator stands in front of the opening, shall be constructed so that the peripheral protecting member can be adjusted to the constantly decreasing diameter of the wheel. The maximum angular exposure above the horizontal plane of the wheel spindle as specified in paragraphs (b)(3) and (4) of this section shall never be exceeded, and the distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed one-fourth inch. (See Figures O-18, O-19, O-20, O-21, O-22, and O-23 in 1910.215.) NOTE: This is usually cited when bench grinders are not properly configured.
Electrical	
Standard	Language
1910.303(b)(2) - Use and installation	Listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling.
1910.303(b)(7) - Installation	Mechanical execution of work. Electric equipment shall be installed in a neat and workmanlike manner. Unused openings in boxes, raceways, auxiliary gutters, cabinets, equipment cases, or housings shall be effectively closed to afford protection substantially equivalent to the wall of the equipment (b)(7)(i). There shall be no damaged parts that may adversely affect safe operation or mechanical strength of the equipment, such as parts that are broken, bent, cut, or deteriorated by corrosion, chemical action, or overheating (b)(7)(iv).

Standard	Language
1910.303(b)(8)(i) - Mounting	Electric equipment shall be firmly secured to the surface on which it is mounted. Note to paragraph (b)(8)(i) of this section: Wooden plugs driven into holes in masonry, concrete, plaster, or similar materials are not considered secure means of fastening electric equipment.
1910.303(f)(2) - Marking	Services, feeders, and branch circuits. Each service, feeder, and branch circuit, at its disconnecting means or overcurrent device, shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident.
1910.303(g)(1)(i)(B) - Clearance	The width of working space in front of the electric equipment shall be the width of the equipment or 762 mm (30 in.), whichever is greater. In all cases, the working space shall permit at least a 90-degree opening of equipment doors or hinged panels; and
1910.303(g)(1)(ii) - Storage prohibited	Working space required by this standard may not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, shall be suitably guarded.
1910.303(g)(2)(i) - Guarding	Except as elsewhere required or permitted by this standard, live parts of electric equipment operating at 50 volts or more shall be guarded against accidental contact by use of approved cabinets or other forms of approved enclosures or by any of the following means: (A) By location in a room, vault, or similar enclosure that is accessible only to qualified persons; (B) By suitable permanent, substantial partitions or screens so arranged so that only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens shall be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them; (C) By placement on a suitable balcony, gallery, or platform so elevated and otherwise located as to prevent access by unqualified persons; or (D) By elevation of 2.44 m (8.0 ft) or more above the floor or other working surface.
1910.304(a)(2) - Polarity	Polarity of connections. No grounded conductor may be attached to any terminal or lead so as to reverse designated polarity.
1910.304(b)(3)(i) - GFCI	All 125-volt, single-phase, 15- and 20-ampere receptacles installed in bathrooms or on rooftops shall have ground-fault circuit-interrupter protection for personnel.

Standard	Language
1910.304(f)(1)(iv) - Overcurrent devices	Overcurrent devices shall be readily accessible to each employee or authorized building management personnel. These overcurrent devices may not be located where they will be exposed to physical damage or in the vicinity of easily ignitable material.
1910.304(g)(5) - Grounds	Grounding path. The path to ground from circuits, equipment, and enclosures shall be permanent, continuous, and effective.
1910.305(b)(1)(ii) - Openings	Unused openings in cabinets, boxes, and fittings shall be effectively closed.
1910.305(b)(2)(i) - Covers	All pull boxes, junction boxes, and fittings shall be provided with covers identified for the purpose. If metal covers are used, they shall be grounded. In completed installations, each outlet box shall have a cover, faceplate, or fixture canopy. Covers of outlet boxes having holes through which flexible cord pendants pass shall be provided with bushings designed for the purpose or shall have smooth, well-rounded surfaces on which the cords may bear.
1910.305(g)(1)(iv) - Extension cords	Unless specifically permitted otherwise in paragraph (g)(1)(ii) of this section, flexible cords and cables may not be used: (A) As a substitute for the fixed wiring of a structure;
1910.305(g)(2)(ii) - Electrical cords	Flexible cords may be used only in continuous lengths without splice or tap. Hard-service cord and junior hard-service cord No. 14 and larger may be repaired if spliced so that the splice retains the insulation, outer sheath properties, and usage characteristics of the cord being spliced.
1910.305(g)(2)(iii) - Electrical cords	Flexible cords and cables shall be connected to devices and fittings so that strain relief is provided that will prevent pull from being directly transmitted to joints or terminal screws.
1910.305(j)(1)(i) - Exposed parts	Fixtures, lampholders, lamps, rosettes, and receptacles may have no live parts normally exposed to employee contact. However, rosettes and cleat-type lampholders and receptacles located at least 2.44 m (8.0 ft) above the floor may have exposed terminals.
1910.305(j)(2)(iv) - Wet locations	A receptacle installed in a wet or damp location shall be suitable for the location.

Standard	Language
1910.334(a)(2)(i) - Inspection	Portable cord and plug connected equipment and flexible cord sets (extension cords) shall be visually inspected before use on any shift for external defects (such as loose parts, deformed and missing pins, or damage to outer jacket or insulation) and for evidence of possible internal damage (such as pinched or crushed outer jacket). Cord and plug connected equipment and flexible cord sets (extension cords) which remain connected once they are put in place and are not exposed to damage need not be visually inspected until they are relocated.
1910.334(a)(2)(ii) - Defective equipment	If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service, and no employee may use it until repairs and tests necessary to render the equipment safe have been made.

Toxic and Hazardous Substances

NOTE: The hazard communication standard, 1910.1200 may not apply to some fire departments based on certain exemptions contained in the standard. For example, the standard does not apply if an employer can show that consumer products or hazardous substances are used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater that the range of exposures that could reasonably be experienced by consumers when used for the purpose intended. Many fire departments only maintain consumer products for upkeep and maintenance of the stations and grounds. In general, these departments would not need to comply with 1910.1200. Other fire departments may perform vehicle maintenance and store commercial quantities of lubricants, solvents and other hazardous chemicals and would be required to comply with 1910.1200. When in doubt, it is always a good practice to implement a written hazard communication program.

Standard	Language
1910.1200(e)(1) - Hazcom program	Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, safety data sheets, and employee information and training will be met, and which also includes the following: (i) A list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and, (ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

Standard	Language
1910.1200(g)(8) - SDS	The employer shall maintain in the workplace copies of the required safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access and other alternatives to maintaining paper copies of the safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)
1910.1200(h)(1) - Training	Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

Fire Department Health & Safety Program (non-mandatory)

NOTE: Sections designated as "non-mandatory" are not required to be implemented for minimum legal compliance but are designed to provide fire departments with realistic best practices to enhance firefighter safety while also recognizing the operating environment and emergency response mission.

Introduction

Firefighter injuries and illnesses place a large burden on municipalities and fire districts as well as the firefighter and their family. In many cases, methods to prevent the injury or illness were readily available but not used. An active safety management system can help fire departments reduce their work-related injuries and illnesses in a cost-effective manner.

Safety & Health Program

The following ten steps provide a solid base to get a fire department safety and health program started to reduce work-related injuries and illnesses.

1. **Establish safety and health as a core value.** Tell members that making sure they finish the day and go home safely is the way you do business. Assure them that you will work with them to find and fix any hazards that could injure them or make them sick.

2. **Lead by example.** Practice safe behaviors yourself and make safety part of your daily conversations with workers.

3. **Implement a reporting system.** Develop and communicate a simple procedure for members to report any injuries, illnesses, incidents (including near misses/close calls), hazards, or safety and health concerns, without fear of retaliation. Include an option for reporting hazards or concerns anonymously.

4. **Provide training.** Train members on how to identify and control hazards in the workplace, as well as report injuries, illnesses, and nearmisses.

5. **Conduct inspections.** Inspect the workplace with members and ask them to identify any activity, piece of equipment, or materials that concern them. Use checklists to help identify problems.

6. **Collect hazard control ideas.** Ask members for ideas on improvements and follow up on their suggestions. Provide them time during work hours, if necessary, to research solutions.

7. **Implement hazard controls.** Assign members the task of choosing, implementing, and evaluating the solutions they come up with.

8. **Address emergencies.** Identify foreseeable emergency scenarios and develop instructions on what to do in each case. Meet to discuss these procedures and post them in a visible location in the workplace.

9. **Seek input on workplace changes.** Before making significant changes to the workplace, work organization, equipment, or materials, consult with members to identify potential safety or health issues.

10. **Make improvements.** Set aside a regular time to discuss safety and health issues, such as traffic incident management and firefighter cardiac awareness, with the goal of identifying ways to improve the program.

For more information see this resource from federal OSHA on implementing a safety and health program.

Fire Department Health & Safety Officer (non-mandatory)

NOTE: Sections designated as "non-mandatory" are not required to be implemented for minimum legal compliance but are designed to provide fire departments with realistic best practices to enhance firefighter safety while also recognizing the operating environment and emergency response mission.

Introduction

The importance of assigning a safety officer for emergency incidents is well-recognized. It is also important to have a fire department health and safety officer that functions in an ongoing capacity to manage a fire department's occupational health and safety program. In most departments this will be a collateral duty and not a dedicated position.

Resources

There are several resources available for fire departments to develop a health and safety officer (HSO) for their organization. The Illinois Society of Fire Service Instructors offers a 40-hour health and safety officer course. The National Fire Academy offers in-person and online safety courses and the Fire Department Safety Officers Association also offers a variety of resources. Chapter 4 of NFPA 1521 – Standard for Fire Department Safety Officer Professional Qualifications outlines training and education requirements for a fire department HSO.

Fire Station Self-Audit Checklist (non-mandatory)

NOTE: Sections designated as "non-mandatory" are not required to be implemented for minimum legal compliance but are designed to provide fire departments with realistic best practices to enhance firefighter safety while also recognizing the operating environment and emergency response mission.

Purpose

This checklist is a guide to assist fire departments in conducting a fire station self-audit.

Facility Audit – 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 (ex. vent at exhaust pipe)).	1910.1000			
Ventilation filters maintained and replaced (if filters are used).	1910.1000			
Electrical				
Electrical outlets/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 ground 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)			

Facility Audit – Fire Station	OSHA Standard (29 CFR_____)	Y	N	Correction Required
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 maint.)				
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)			
Materials Storage				
Storage mezzanines – safe conditions.	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” 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.	1910.132(d)(1)			
Slip, Trip, Fall Prevention				
Floors maintained as dry as feasible (floor is mopped/squeegeed immediately after apparatus/equipment washing).	1910.22(a)(2)			
Stairs have handrails and railings, treads in good condition.	1910.29(f)			

Facility Audit – Fire Station	OSHA Standard (29 CFR_____)	Y	N	Correction Required
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.	General Duty			

Fire Department Operational Risk Management (non-mandatory)

NOTE: Sections designated as "non-mandatory" are not required to be implemented for minimum legal compliance but are designed to provide fire departments with realistic best practices to enhance firefighter safety while also recognizing the operating environment and emergency response mission.

Introduction

Firefighters knowingly subject themselves to elevated levels of risk in the performance of their duties. Some of those risks are unpredictable and unavoidable. Many are well-known and can be effectively limited or avoided through the application of operational risk management. This section is based on Chapter 3: Operational Risk Management, of the U.S. Fire Administration's 2018 publication *Risk Management Practices in the Fire Service* and is designed to inform fire departments about the critical importance of integrating operational risk management practices into fireground command and decision making. Risk management is one of the sixteen firefighter life safety initiatives of the National Fallen Firefighter Foundation.

Defining Risk

To define risk, it is important to understand what a hazard is and how hazards and risks are related. A hazard is any source of potential damage or harm to an individual. A risk is the chance or probability of a person being harmed if exposed to a hazard. See the section on the hierarchy of controls (p.77) for more information and examples.

Acceptance of Risk

The acceptance of risk by firefighters is intimately related to the reasons emergency organizations exist. Firefighters perform functions that are considered too dangerous for ordinary citizens. They understand and accept the increased risks to their own lives that is often involved in protecting life and property.

Fire department leaders must effectively manage risks by recognizing danger, considering and weighing alternatives, and balancing anticipated benefits with potential consequences (risk/benefit analysis). In some cases, doing that leads to the conclusion that a given situation simply does not justify the risk involved in acting.

During an incident, risk management must begin:

1. At the top, where the incident commander (IC) must determine the appropriate strategy for the incident.

2. Then down to company officers who must evaluate conditions that define the risk exposure for small groups of workers before and during operations.

3. It extends further down to the individual firefighter who must use the same type of judgment to decide on personal actions in many situations.

This integrated approach must be standardized into an SOP/SOG, incorporated within the duties and responsibilities of all members, and become part of the organizational culture.

Bravery in the Face of Risk

Firefighters' reputations are frequently associated with courage and bravery. That perception often suggests that firefighters are willing to accept any risk to their personal safety to perform their duties. Blind acceptance of risk used to be unquestioned in the fire service. It was typical for firefighters to be exposed to very high levels of risk, with very little concern for their personal safety. Firefighters were expected to follow orders without question and to accept any risk to "get the job done." The most respected firefighters were often those with the most obvious disregard for their own safety — those who demonstrated the attitude that the fire must be defeated "at any cost."

Today, there is a different perception of the relationship between bravery and risk. Without question, bravery and courage is still respected, valued, and honored, particularly when a situation involves saving lives. The public admires the heroism of firefighters, but no one expects firefighters to risk their lives where there are no lives to be saved. Over the past two decades new initiatives have been launched to address firefighter safety.

Fire departments are expected to take every reasonable step to protect their members from occupational injuries or illnesses. Citizens expect their fire department to provide members with the training, tools, equipment and support to perform safely and effectively. A well-trained and well-equipped firefighter has the potential to affect, improve and save the lives of countless citizens over the course of their career.

The Fundamental Principle of Occupational Safety and Health

The Illinois Occupational Safety and Health Act requires fire departments to provide reasonable protection to the lives, health and safety of its members and provide a workplace (this includes incident scenes) free from recognized hazards that can cause death or serious physical harm. The application of this concept to emergency operations essentially means an organization must recognize, identify and evaluate the dangers inherent in performing emergency operations and take reasonable steps to protect

employees from those dangers. Firefighters must be properly trained, supervised and equipped to function as safely as possible, while recognizing the inherent risk factors involved in conducting emergency operations.

This decades old firefighter safety video from the National Fire Academy highlights a variety of unsafe practices and behaviors through graphic footage and blunt commentary. Despite the age of the production, many of the behaviors and practices identified in the video have not vanished. New firefighters, new officers, and new chiefs would be well-served to watch this video and consider the consequences of performing or tolerating risky behaviors without a justifiable benefit.

Risk Management is a Fundamental Responsibility

Risk management is a critically important responsibility of incident commanders and officers on emergency scenes. The concept of risk management is relatively new to the fire service, but basic risk management principles (risk vs. benefit) have always been incorporated into managing emergency incidents. The major change for fire department leaders to recognize is that risk management during emergencies should be a well-defined, value-driven process — not just a matter of personal and situational judgment.

On Scene: Initial Risk Assessment (Size-up)

The determination of acceptable risk and the choice of operational mode begins with the initial incident commander performing a size-up. A good size-up will determine appropriate actions and overall strategy.

The initial size-up must consider the probability of victims, because the acceptable risk to save a life is higher than the acceptable risk to protect property. It must also consider the fire conditions as well as several other factors. If initial resources to conduct an interior attack are not sufficient, the interior attack might have to be delayed until additional personnel arrive. If the situation is too dangerous for safe entry, the incident commander must implement a defensive strategy.

NOTE: See the section on 1910.134 (respiratory protection) for legal requirements on initial entry commonly known as the “two-in, two-out” standard.

Additionally, the initial size-up should identify if the situation is a high risk/low frequency event for the responding personnel and adjust accordingly.

It is impossible to obtain and verify all pertinent information (size-up) before making time-sensitive, critical decisions. The decisions that guide initial actions must often be made with a limited amount of information, making generous allowances for factors that are unknown. An incident commander (IC) must consciously differentiate between factors that are “known” and those that are based on presumptions, experience and standard approaches. The incident commander must then place a priority on either confirming these presumptions or revising them as soon as facts can be obtained.

Example: An IC initially presumes that a structure still has electrical service. The IC prioritizes securing electrical service. Electrical service is secured and the IC can confirm that power to the structure has been cut off. The risk of electrocution is eliminated.

On Scene: Determine the Strategy

Structural fireground operations fall into one of two strategies, offensive or defensive. The strategy is determined through incident size-up that identifies which situation applies:

Situation 1: We will risk our lives a lot, in a calculated manner, to save SAVABLE lives.

Situation 2: We will risk our lives a little, in a calculated manner, to save SAVABLE property.

Situation 3: We will not risk our lives at all for lives or property that are already lost.

In offensive situations, firefighters enter the hazard zone (burning structures and the collapse zone) and attempt to control a fire where it is burning. They expose themselves to all the risks present in that environment. In the defensive mode, firefighters avoid many of those risks by staying out of the hazard zone and conducting operations from a safe distance.

All on scene personnel must be guided by the IC's strategic plan. Company officers must also continually evaluate the risks present within their assigned areas of responsibility and implement appropriate tactics (UL-FSRI Tactical Considerations and ISFSI Principles of Modern Fire Attack). Safe operation at any incident will require continuous identification, evaluation and control of changing conditions by all personnel operating at the incident. Without good judgment and a strong command presence, risk management policies are nothing more than words on paper.

A fire department's definition of acceptable risk might be more conservative than the level of risk an individual firefighter might willingly accept. Officers are responsible for ensuring that firefighters do not take risks that exceed the incident commander's risk assessment. Example: The incident commander has implemented a defensive strategy (size-up = situation 3) and ordered all personnel to stay outside of the collapse zone of a well-developed shed fire. A firefighter on the "charlie" side walks up to the structure with a hose line to get a better angle (size-up = situation 2). The officer supervising the firefighter directs him/her back to a safe position (size-up = situation 3) and replaces the handline with a ground monitor.

An IC has a wide span of discretionary authority for making risk management decisions. A strategic plan must not needlessly place the lives of emergency responders in danger, but it should not be so cautious that it allows a fire to destroy property that could be saved or keeps other valuable functions from being performed. The right plan falls somewhere on

the continuum of being completely safe and completely effective.

Plan for rescue of viable victims:
Complete safety----------X----------Complete effectiveness

Plan for protecting residential property, room and contents fire:
Complete safety ----------X----------Complete effectiveness

Plan for protecting abandoned, fully engulfed property:
Complete safety----------X----------Complete effectiveness

On Scene: Marginal Situations

Many times, offensive/defensive conditions are clear cut and the IC can quickly determine the appropriate strategy. In some cases, conditions are marginal. A marginal situation is defined as conditions prompting a defensive strategy with a known rescue. A marginal situation has a very short window to conduct a rescue or to discontinue the attempt and begin a defensive fire attack. An IC needs to constantly evaluate conditions while operating in a marginal situation. It is better to go from an offensive to a defensive strategy too soon rather than too late.

On Scene: Ongoing Size-up

The initial strategic plan is always subject to revision as the amount of confirmed information increases and the degree of uncertainty decreases. An IC must constantly seek out information to replace assumptions or perceptions with verified facts and continue to develop a pessimistic fire control strategy. Company officers are expected to provide regular progress reports to an IC. In addition, an IC must ask questions and actively seek information to constantly update the operational picture.

An IC should not hesitate to assign individuals to reconnaissance missions to observe conditions firsthand. An IC should always have this capability, even if it requires calling for additional personnel to perform this important function.

On Scene: Changing Strategy

An IC must change the operational strategy whenever the level of risk deemed to be acceptable for operating personnel is exceeded — either because the situation has changed from a life-saving to a property-saving operation, or because an interior offensive fire attack is not controlling the fire. If that happens, firefighters must be removed from the interior before they are trapped by flames or buried by a structural collapse. An IC must always expect conditions to rapidly deteriorate and be prepared to change his or her strategy on extremely short notice.

Changing strategy can be directly related to the strategic objectives at any incident: life safety, incident stabilization and property preservation/environmental protection. If the life safety objective has been achieved for the incident, then the IC should re-calibrate the acceptable level of risk and realize that placing firefighters in a risky situation is a life-safety threat.

The IC should be outside the hazard zone where it is possible to evaluate the "big picture" and direct operations in an environment that is conducive to managing information and communications. Often, the IC has to depend on other individuals to provide information about changing conditions that are not visible, particularly interior conditions. At the same time, interior crews have to depend on the IC's ability to evaluate conditions, because their ability to evaluate a situation may be very limited. (It is difficult to evaluate conditions effectively while wearing breathing apparatus and operating a hoseline inside a smoke-filled building.) The IC has to depend on others to report information, particularly risk-related information, and the interior crews have to trust the IC's judgment to decide when it is time to retreat.

Training & Education

This section broadly covers the application of operational risk management during structure fires. Fire departments should regularly train at the strategic, tactical and task level to be safe and effective when responding to structure fires. A wide variety of educational materials and training related to operational risk management (such as this NIOSH ALERT), fireground safety, incident command and decision making are available to fire departments at little to no cost.

Reference:

U.S. Fire Administration. 2018. Risk Management Practices in the Fire Service.

Fire Department Incident Investigation (non-mandatory)

NOTE: Sections designated as "non-mandatory" are not required to be implemented for minimum legal compliance but are designed to provide fire departments with realistic best practices to enhance firefighter safety while also recognizing the operating environment and emergency response mission.

Introduction

IL-OSHA strongly encourages fire departments to investigate all incidents in which a firefighter is hurt, as well as close calls (sometimes called a near miss or good catch) in which a firefighter might have been hurt if the circumstances had been slightly different. Investigating incidents is one of the sixteen firefighter life safety initiatives by the National Fallen Firefighter Foundation.

"Turnkey" Reporting System

A grant funded reporting system managed by the International Association of Fire Chiefs is available to all fire departments at no cost at www.firefighternearmiss.com.

The system allows fire departments to submit anonymously via an intuitive online reporting tool. The system also allows firefighters to browse anonymous reports from other fire departments.

NOTE: IL-OSHA has no affiliation with or access to this system.

Training

The site also provides a wealth of free training to include a near miss report of the week and monthly crisis decision training.

Additional Resources

Root Cause: The Importance of Root Cause Analysis During Incident Investigation. This federal OSHA fact sheet provides guidance for identifying root causes of incidents and/or near misses in order to prevent their recurrence.

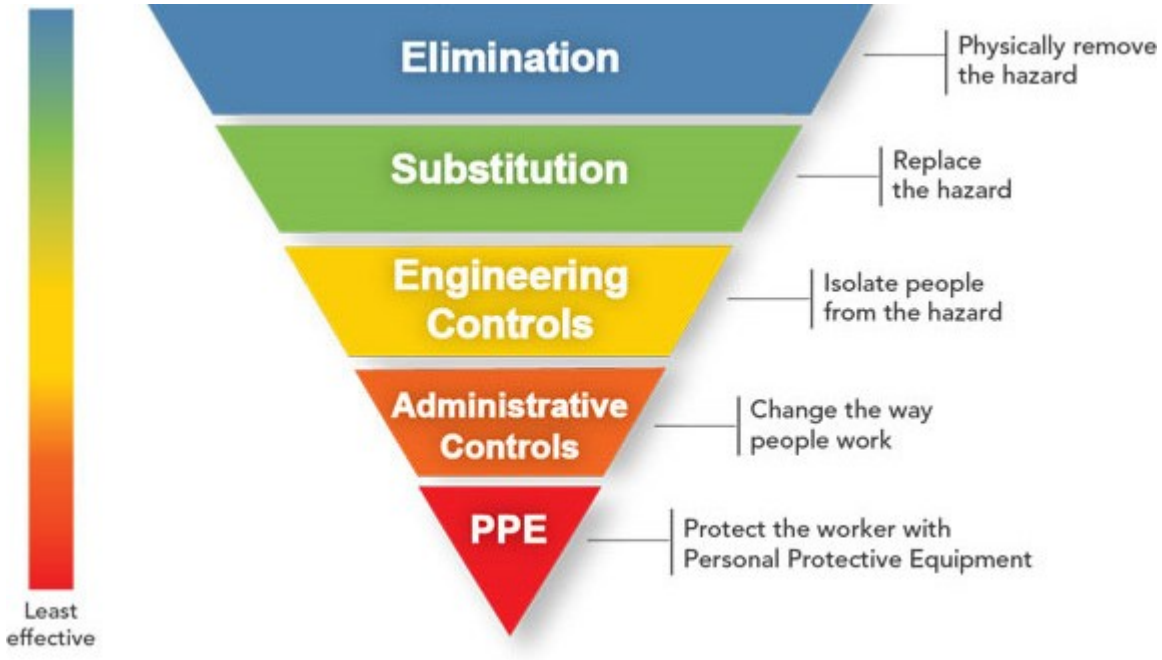
Incident Investigations: A Guide for Employers. This federal OSHA guidance document provides employers with a systems approach to identifying and controlling the underlying or root causes of all incidents in order to prevent their recurrence.

Just Culture. A balanced approach between a blameless culture and a punitive culture.

The Hierarchy of Controls (non-mandatory)

NOTE: Sections designated as “non-mandatory” are not required to be implemented for minimum legal compliance but are designed to provide fire departments with realistic best practices to enhance firefighter safety while also recognizing the operating environment and emergency response mission.

Controlling exposures to occupational hazards is the fundamental method of protecting workers. Traditionally, a hierarchy of controls has been used as a means of determining how to implement feasible and effective control solutions.



The idea behind this hierarchy is that the control methods at the top of graphic are potentially more effective and protective than those at the bottom. Following this hierarchy normally leads to the implementation of inherently safer systems, where the risk of illness or injury has been substantially reduced. Almost any hazard can be “plugged” into the control hierarchy. The idea is that you start at the top of the hierarchy and adopt the most effective measure that also allows you to accomplish your mission. If the mission is to rescue a viable victim you may have to rely on personal protective equipment. If the mission is to extinguish an abandoned barn, you could probably completely avoid and eliminate most hazards associated with structural firefighting through defensive, exterior operations.

Elimination

Eliminating or avoiding the hazard is the most effective means of control. For critical, lifesaving activities, it may not be possible to avoid hazards. Examples of avoiding or eliminating hazards in the fire service could be:

- Rapid disconnection of electrical service to a building during a structural fire. This eliminates an electrical hazard and the risk of electrocution to personnel.
- Using aerial master stream hydraulic overhaul to tip over an unstable brick chimney at a structure fire. This eliminates struck-by hazards and the risk of injury to responders from sudden collapse.
- Removing personnel not directly engaged in operations from the hazard zone at a structure fire. This reduces overall employee exposure to a variety of hazards and reduces the risk of injury.

Substitution

Substitution is the second most effective hazard control. It involves replacing something that produces a hazard with something that does not produce a hazard or reduces the hazard. Examples of substitution in the fire service could be:

- Using passive, self-sheathing syringes in place of traditional syringes. This substantially reduces or may eliminate exposure to bloodborne hazards and reduces the risk of a needlestick injury.
- Using lightweight, composite vehicle rescue stabilization struts in place of heavy, steel stabilization struts. This reduces the risk of a back injury from lifting heavy equipment.

Engineering Controls

The third most effective means of control is using engineering controls. Engineering controls do not eliminate hazards, but they do isolate people from hazards. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. Examples of engineering controls in the fire service could be:

- A firefighter operating a master stream aerial device above a fire rather than placing a firefighter in the structure isolates the firefighter from a variety of hazards and reduces the risk of injury.
- Using an apparatus exhaust removal system isolates personnel from inhalation hazards of potential air contaminants and reduces the risk of chronic illness.
- Using a ground monitor from a fixed position, rather than a mobile handline, isolates firefighters from struck-by hazards from getting too close to a structure susceptible to collapse and reduces the risk of injury.
- Placing traffic cones, apparatus and signage at a traffic incident isolates personnel from struck-by hazards and reduces the risk of injury.

Administrative Controls

Administrative controls are changes to the way people work. Administrative controls do not remove hazards, but limit or prevent people's exposure to the hazards. Administrative controls are less effective than previously mentioned control methods because personnel must actively interpret and comply with administrative controls/rules. To be effective, administrative controls need to be enforced through supervision. Examples of administrative controls in the fire service could be:

- Requiring firefighters to perform gross decontamination after a structure fire reduces exposure to possible carcinogens and the risk of chronic illness.
- Requiring firefighters to implement the OSHA "two-in/two-out" procedure during initial structural fire attack reduces the risk of injury to firefighters that may need rapid intervention during the initial attack.
- Requiring firefighters to check their SCBA prior to use reduces exposure to possible inhalation hazards from SCBA malfunction and reduces the risk of acute respiratory injury.

Personal Protective Equipment

This is the least effective method for protecting personnel. Proper use of PPE requires significant effort by the affected workers and may not adequately protect against the hazard, providing a false sense of security. Personnel must be trained in the proper use of personal protective equipment and must be supervised to ensure proper use. Additionally, some PPE such as SCBA, increase physiological effort to complete a task. This requires employers to ensure users are physically and medically able to perform activities while wearing SCBA. Use of PPE to control a hazard should always be the last resort.

- Using a structural firefighting helmet may reduce but cannot eliminate exposure to struck-by hazards while operating at a structure fire and reduces the risk of a head injury.
- Using extrication gloves during vehicle rescue operations may reduce but cannot eliminate cut hazards and reduces the risk of a hand injury.

Cancer in the Fire Service

According to a 2013 NIOSH study, there is a direct link between occupational exposure and cancer in the fire service. The following resources are available to fire departments to identify and reduce occupational exposure to carcinogens.

State of Illinois Exposure Reduction Project

In 2019, the Illinois Fire Service Institute (IFSI), the Office of the State Fire Marshal (OSFM), and State of Illinois Mutual Aid Box Alarm System (MABAS) partnered in the creation of the State of Illinois Preliminary Exposure Reduction Training project. This joint venture was developed to deliver critical firefighter health and life safety research, education, training and basic equipment to fire departments across the state. The intent of the project is to provide departments with free basic equipment that can be used for preliminary exposure reduction (gross decontamination or "decon") of personnel on incident response scenes, as well as training on how to use those tools.

For a wealth of information and the opportunity to acquire free basic decontamination equipment, visit the State of Illinois Exposure Reduction Project.

Firefighter Cancer Support Network

The Firefighter Cancer Support Network provides a wealth of occupational-cancer resources and training for fire departments. The Network also aids Fire/EMS personnel and their family members who have been diagnosed with cancer.

The National Institute for Occupational Safety and Health

Introduction

The National Institute for Occupational Safety and Health or NIOSH is a non-regulatory body within the U.S. Centers for Disease Control. NIOSH administers the firefighter fatality investigation and prevention program and has produced a number of publications and reports on firefighter safety.

The NIOSH Five

NIOSH has identified the top five causal factors of firefighter deaths and injures on the fireground as:

1. Improper Risk Assessment
2. Lack of Incident Command
3. Lack of Accountability
4. Inadequate Communications
5. Lack of SOPs or failure to follow established SOPs

NIOSH Recommendations

In 2009, NIOSH provided recommendations to the fire service to prevent firefighter fatalities. While NIOSH recommendations do not have the force of law, under specific circumstances, IL-OSHA could use a NIOSH publication and/or recommendation as justification to cite a fire department for violating the general duty clause (see the Compliance section of this guide). Some NIOSH recommendations do mirror, or compliment required standards enforced by IL-OSHA. These recommendations are as follows and divided by category:

Medical Recommendations
Conduct annual medical evaluations to screen all fire fighters for risk factors for coronary artery disease (e.g., smoking, diabetes mellitus, high blood pressure, high blood cholesterol, physical inactivity, obesity, and a family history of coronary artery disease).
Conduct exercise stress tests on fire fighters who have coronary artery disease or who are at increased risk of this disease and sudden cardiac death. Increased risk for sudden cardiac death is defined as male fire fighters older than 45 years of age (older than 55 years for female fire fighters) with two or more risk factors for coronary artery disease.
Ensure that fire fighters are medically cleared by physicians who are knowledgeable about the cardiovascular demands of fire fighting and aware of published medical guidelines for fire fighters.
Develop individualized fitness and wellness programs for all fire fighters.
Conduct annual fitness evaluations by a fitness coordinator under the supervision of a physician who is knowledgeable about the physical demands of fire fighting and aware of published medical guidelines for fire fighters.
Include health promotion components (e.g., smoking cessation, cancer screening, diet and nutritional education, and immunizations) in the fire department's wellness program.
Standard Operating Procedure/Guideline Recommendations
Ensure that the department's SOPs are developed and followed and that refresher training is provided.
Develop and enforce SOPs for the safe and prudent operation of emergency vehicles.
Enforce SOPs in the use of seat belts for all emergency vehicles.
Establish and implement an incident command system (ICS) with written SOPs for all fire fighters.
Ensure that SOPs addressing emergency scene operations such as basement fires are developed and followed on the fireground.
Develop and implement written maintenance procedures for the SCBA.
Communications Recommendations
Establish a method of fireground communication that permits coordination between the incident commander and the fire fighters.

Ensure that fire fighters are equipped with radios that do not bleed over, cause interference, or lose communication under field conditions.
Consider providing all fire fighters with portable radios or radios integrated into their facepieces.
Ensure that a tone or alert recognized by all fire fighters is transmitted immediately when conditions become unsafe for fire fighters.
Instruct and train fire fighters in initiating emergency traffic (mayday-mayday) and activating their personal alert safety system (PASS) device when they become lost, disoriented, or trapped.
Whenever a change in personnel occurs, make sure that everyone is briefed and understands the procedures and operations required for that shift, station, or duty.
Ensure that properly functioning communications equipment is available and can adequately support the volume of radio traffic at fire scenes.
Establish and maintain regional mutual-aid radio channels to coordinate and communicate activities involving units from multiple jurisdictions.
Fire department dive teams: Ensure that positive communication is established among all divers and the personnel who remain on the surface. Fire department dive teams: Ensure that divers maintain continuous visual, verbal, or physical contact with their dive partners.
Incident Command Recommendations
Clearly identify the IC as the only person responsible for the overall coordination and direction of all activities at an incident.
Ensure that the IC maintains the role of director and does not become involved in fire-fighting operations.
Implement the ICS for the management of all fires and establish an incident command post (ICP) as needed to facilitate command and control, especially on complex fires involving multiple agencies.
Appoint a separate incident safety officer (independent from the IC).
Ensure that the IC conducts a complete size-up of the incident before initiating fire-fighting efforts and continually evaluates the risk versus gain during operations.
Convey strategic decisions through the IC to all suppression crews on the fireground.

Maintain accountability for all personnel at the fire scene.
Train fire fighters to communicate interior conditions to the IC as soon as possible and to provide regular updates.
Motor Vehicle Recommendations
Ensure that all fire apparatus are equipped with seat belts.
Ensure that all fire fighters riding in emergency fire apparatus are wearing seat belts and are belted securely.
Do not permit drivers of fire apparatus to move vehicles until all occupants are secured with seat belts.
Inform all drivers of fire department vehicles that they are responsible for the safe and prudent operation of the vehicle under all conditions.
Instruct drivers of emergency fire apparatus to come to a complete stop at intersections having a stop sign or a red signal light before proceeding through the intersection.
Instruct drivers of fire department vehicles to come to a complete stop at all unguarded railroad grade crossings during emergency response or non-emergency travel.
Provide drivers of fire department vehicles with driver training at least twice a year.
Develop comprehensive apparatus maintenance programs in accordance with manufacturer's specifications and instructions. Make sure these include regularly scheduled inspections, documentation, and procedures for removing apparatus from service until major defects are repaired.
Provide baffles for all apparatus equipped with water tanks to control water movement.
Determine a safe operating weight for water tankers based on vehicle characteristics and remove overweight vehicles from service.
Make sure that the placement of additional equipment (e.g., radios and map card boxes) on an apparatus does not interfere with the driver's ability to operate controls.
Personal Protective Equipment Recommendations
Properly inspect, use, and maintain SCBAs to ensure they function properly when needed.
Ensure that officers enforce the use of and that fire fighters wear their SCBAs equipped with integrated PASS (including the initial assessment) whenever they might be exposed to a toxic or oxygen deficient atmosphere.

Ensure that fire fighters wear and use PASS devices when involved in fire fighting, rescue, and other hazardous duties.
Ensure that personnel wear PPE suitable to the incident while operating at an emergency scene (e.g., a highly visible [strong yellow/green or orange] reflectorized flagger vest).
Ensure that adequate PPE (e.g., SCBA) is available while fire fighters are engaged in fire activity.
Provide all rescue personnel with appropriate PPE (i.e., water rescue helmet and an appropriate personal flotation device) when operating at a water incident and ensure its proper use.
Strategy and Tactics Recommendations
Ensure that fire-fighting tactics and operations do not increase hazards on the interior (e.g., opposing hose streams).
Ensure that fire fighters from the ventilation crew and the attack crew coordinate their efforts.
Evacuate fire fighters performing fire-fighting operations under or above trusses as soon as it is determined that the trusses are exposed to fire.
Establish a collapse zone and clearly mark it at structure fires where buildings have been identified at risk of collapsing.
Monitor the collapse zone to ensure that no fire-fighting operations take place in the danger zone.
Ensure that fire fighters, when operating on the floor above the fire, have a charged hoseline.
Ensure that any hose line taken into the structure remains inside until all crews have exited.
Ensure that the IC conducts a complete size-up of the incident before initiating fire-fighting efforts and continually evaluates the risk versus gain during operations.
Ensure that a backup line is manned and in position to protect exit routes.
Ensure that backup lines are equal to or larger than the initial attack lines.
Consider using a thermal imaging camera as a part of the exterior size-up.

Rapid Intervention Team Recommendations
Ensure that an RIT is established when fire fighters enter an immediately dangerous to life and health (IDLH) atmosphere and that the RIT is properly trained and equipped.
Ensure that once an RIT is established, they remain the RIT throughout the operation.
Ensure that only the assigned RIT completes search and rescue operations.

NIOSH Firefighter Fatality Investigation Reports

NIOSH conducts investigations of firefighter line-of-duty deaths to formulate recommendations for preventing future deaths and injuries. The program does not seek to determine fault or place blame on fire departments or individual firefighters, but to learn from these tragic events and prevent future similar events. Reports can be used for case study training session or be used to update current or implemented new policies and procedures. Applying lessons learned from a NIOSH report can have a direct and positive impact on operations.

2012-28 **Death in the line of duty...** NIOSH

A summary of a NIOSH fire fighter fatality investigation — *September 24, 2013*

Career Captain Sustains Injuries at a 2-1/2 Story Apartment Fire then Dies at Hospital – Illinois

Executive Summary

On November 2, 2012, a 54-year-old male career captain sustained injuries at a 2-1/2 story apartment building fire then died at a local hospital. The fire occurred only blocks from the victim's fire station. Battalion Chief 19 (BC19) was the first to arrive on scene and reported heavy smoke coming from the rear and front of the structure's attic. BC19 surveyed the interior of both floors, while the captain and a fire fighter from Engine 123 stretched a 2½-inch line with a gated wye to 1¾-inch hoseline to the 2nd floor. BC19 radioed the captain from the rear of the 1st floor apartment that there was heavy fire in the rear covered porch and stairwell. The captain (victim) and the fire fighter stretched the hoseline towards the rear of the second floor apartment. Before water could be applied to the fire the captain told the fire fighter they had to "get out." Engine 49 (2nd due engine) had stretched a 2½-inch hoseline down the alley to the rear and get into position to put water through the attic window. The captain moved halfway back in the hallway towards the kitchen and yelled out that he needed help. As the fire fighter drug the captain to the kitchen, additional fire fighters who reached the 2nd floor heard the Captain and fire fighter collapse on the floor in front of them. A Mayday was called by the Squad 5 Lieutenant on the second floor and the victim was carried down the stairs to the front yard. The victim responded to basic life support measures and was moved to Ambulance 19 for advanced life support. The victim was transported to the local hospital where he had complications during airway management and died.

Front view of the fire structure *(NIOSH Photo)*

Contributing Factors

- *Modified building construction with multiple ceilings and a multi-story enclosed rear porch*
- *Horizontal ventilation contributed to the rapid fire growth*
- *Fireground communications*
- *Lack of proper personal protective equipment*
- *Lack of a sprinkler system in the residential rental building.*

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NOTE: NIOSH investigations are completed independently of Illinois OSHA fatality investigations and inspections. NIOSH does not investigate every line of duty death.

Link: All NIOSH Fire Fighter Fatality Investigation Reports for Illinois

Link: All NIOSH Fire Fighter Fatality Investigation Reports for the United States

NIOSH Publications

NIOSH has produced a wide variety of publications related to fire department occupational safety and health hazards. These publications can serve as a training topic or can be used to update current or implement new policies and procedures.

Link: All NIOSH publications

Selected NIOSH Alerts, Hazard ID, and Workplace Solution Publications

Link: WORKPLACE SOLUTIONS: Preventing Deaths and Injuries of Fire Fighters Working at Basement and Other Below-Grade Fires (2018)

Link: WORKPLACE SOLUTIONS: Preventing Deaths and Injuries of Fire Fighters During Training Exercises (2016)

Link: WORKPLACE SOLUTIONS: Preventing Deaths and Injuries to Fire Fighters by Establishing Collapse Zones at Structure Fires (2014)

Link: WORKPLACE SOLUTIONS: Promoting Hearing Health among Fire Fighters (2013)

Link: WORKPLACE SOLUTIONS: Preventing Death and Injuries of Fire Fighters Operating Modified Excess/Surplus Vehicles (2011)

Link: ALERT: Preventing Deaths and Injuries of Fire Fighters using Risk Management Principles at Structure Fires (2010)

Link: WORKPLACE SOLUTIONS: Preventing Exposures to Bloodborne Pathogens among Paramedics (2010)

Link: WORKPLACE SOLUTIONS: Preventing Deaths and Injuries of Fire Fighters Working Above Fire-Damaged Floors (2009)

Link: ALERT: Preventing Fire Fighter Fatalities Due to Heart Attacks and Other Sudden Cardiovascular Events (2007)

Link: ALERT: Preventing Injuries and Deaths of Fire Fighters due to Truss System Failures (2005)

Link: WORKPLACE SOLUTIONS: Preventing Deaths and Injuries to Fire Fighters during Live-Fire Training in Acquired Structures (2004)

Link: WORKPLACE SOLUTIONS: Divers Beware: Training Dives Present Serious Hazards to Fire Fighters (2004)

Link: HAZARD ID: Fire Fighter Deaths from Tanker Truck Rollovers (2001)

Link: HAZARD ID: Traffic Hazards to Fire Fighters While Working Along Roadways (2001)

Link: ALERT: Preventing Injuries and Deaths of Fire Fighters due to Structural Collapse (1999)

Link: HAZARD ID: Fire Fighting Hazards During Propane Tank Fires (1999)

Link: ALERT: Preventing Worker Injuries and Deaths from Traffic-Related Motor Vehicle Crashes (1998)

Link: ALERT: Preventing Injuries and Deaths of Fire Fighters (1994)

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