DRAFT RECLAMATION SAFETY AND HEALTH STANDARDS RELEASE

Comments on this draft release must be submitted to ssummerhays@usbr.gov by December 15, 2019.

Background and Purpose of the Following Draft Reclamation Safety and Health Standards (RSHS)

The RSHS are being updated by the Bureau of Reclamation Safety and Occupational Health Office to reflect new guidance from Reclamation, the Department of the Interior, and the Occupational Safety and Health Administration. This public release is intended to provide the public an opportunity to comment on each updated section in draft form. This process will enhance transparency and eliminate potential confusion about Reclamation’s safety standards.

The RSHS are incorporated into the Reclamation Manual Directive and Standard, Occupational Safety and Health Directive – General (SAF 01-01). The Reclamation Manual is used to clarify program responsibility and authority and to document Reclamation-wide methods of doing business. All requirements in the Reclamation Manual are mandatory for Reclamation employees.

See the following pages for the draft RSHS.
Section 10

Fire Prevention and Protection

10.1 Scope
This section establishes the requirements for fire prevention and protection at all facilities owned, controlled, or occupied by the Bureau of Reclamation (Reclamation) and for contactors at all Reclamation construction sites and facilities. This section incorporates all the requirements of the Department of the Interior Departmental Manual, Series 27, Part 485, Chapter 19, Fire Safety. Where this section does not provide specific instructions, it adopts by reference the current editions of Occupational Safety and Health Administration (OSHA) regulations, National Fire Protection Association (NFPA) codes and standards, and International Code Council codes.

10.2 General Requirements

10.2.1 Goal
Reclamation’s goal is to provide a safe work environment for our employees and the public and to effectively protect the Government’s assets, Reclamation’s operations, and the environment from the hazards created by fire, explosion, and events involving hazardous materials. Fire prevention, emergency action, and fire response planning are key elements in Reclamation’s meeting this goal.

10.2.2 Minimum Criteria for Life Safety

10.2.3 Maintenance
Any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature required for fire prevention and protection of Reclamation facilities shall be continuously maintained in an effective and working condition.

10.2.4 Testing and Inspections
Any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature required for fire prevention and protection of Reclamation facilities shall be tested, inspected, and operated as specified in this section.
10.3 Training Requirements

10.3.1 Initial

10.3.1.1 Portable Fire Extinguishers

10.3.1.1.1 ALLOWED EMPLOYEES. Employees allowed to use portable fire extinguishers per paragraph 10.8.4 shall be trained in the general principles of portable fire extinguisher use and the hazards associated with incipient-stage firefighting.

10.3.1.1.2 ASSIGNED EMPLOYEES. Employees assigned to use portable fire extinguishers per paragraph 10.8.4 shall be trained in the general principles of portable fire extinguisher use, the hazards associated with incipient-stage firefighting, and the hands-on use of portable fire extinguishers.

10.3.1.2 Fire Brigade. All fire brigade members shall receive training meeting the requirements of NFPA 600, Standard on Facility Fire Brigades, and OSHA 1910 Subpart L, Fire Protection.

10.3.2 Refresher/Recertification

10.3.2.1 Portable Fire Extinguishers. The employees allowed and assigned to use portable fire extinguishers shall receive the training outlined in paragraph 10.3.1.1 annually.

10.3.2.2 Fire Brigade. All fire brigade members shall receive refresher training meeting the schedule and requirements of NFPA 600 and OSHA 1910 Subpart L.

10.3.3 Recordkeeping

All records of employee training shall be maintained in the Department of the Interior system of record.

10.4 Hazard Identification, Assessment, and Safety Measures

10.4.1 Fire Risk Assessment

10.4.1.1 General Requirement. A fire risk assessment shall be completed at each Reclamation facility and for each unit of mobile equipment (valued over $250,000 or watercraft with enclosed compartments). The fire risk assessment shall be included as part of the fire prevention plan outlined in paragraph 10.5.1.

10.4.1.2 Considerations. The fire risk assessment shall consider safety of life, safety of firefighters and emergency responders, detection of fire events, protection of property, protection of equipment, capability to continue operations, environmental impact, debris cleanup, hazardous material disposal and remediation, and damage restoration.
10.5 **Pre-job Briefing and Planning Requirements**

10.5.1 **Fire Prevention Plan**

Each facility shall have a written fire prevention plan, and it must be available at the facility for employees to review. The fire prevention plan must include:

- a list of all major workplace fire hazards,
- a list of all major mobile equipment fire hazards,
- an evaluation of the wildfire exposure,
- a fire risk assessment,
- the type of fire prevention and protection equipment necessary to control each major fire hazard,
- procedures for proper handling and storage of hazardous materials,
- a list of potential ignition sources,
- procedures for controlling potential ignition sources,
- procedures for controlling accumulations of flammable and combustible waste materials,
- procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials,
- assignments of responsibilities for maintaining the fire prevention and protection equipment that prevents or controls sources of ignition or fires,
- assignments of responsibilities for controlling fuel source hazards,
- procedures for regularly scheduled fire prevention and protection inspections,
- if applicable, procedures for fire and security rounds by security personnel or assigned personnel,
- procedures for informing new and existing employees assigned to the facility of the fire hazards to which they are exposed, and
- procedures for new and existing employees assigned to the facility to review the parts of the fire prevention plan necessary for self-protection.

**10.5.1.1 Employee Review.** The fire prevention plan must be reviewed with new employees upon assignment to the facility and with any employee when the employee’s responsibilities under the plan change. The fire prevention plan must be reviewed with all employees assigned to the facility whenever developed or changed and at least every three years.

**10.5.1.2 Contractors.** When the contract requires the submittal of a safety plan the contractor is responsible for developing a fire prevention plan that meets the requirements of paragraph 10.5.1. The fire prevention plan shall be submitted to the contracting officer as part of the contractor’s safety plan. The fire prevention plan shall be maintained at the job site throughout all phases of the contractor’s work. The contractor must review the fire prevention plan with all contractor employees upon assigning them to work at the job site.

10.5.2 **Fire Emergency Action Plan**

Each facility shall have a written fire emergency action plan, and it must be available at the facility for employees to review. The fire emergency action plan must include:

- procedures for reporting a fire or other fire-related emergency,
• procedures for emergency evacuation, including type of evacuation and exit route assignments,
• procedures and a risk assessment for employees who remain behind to operate critical facility operations before evacuating (see paragraph 10.8.6.6),
• procedures for accounting for all employees after evacuation,
• procedures for employees performing rescue or medical duties,
• assignment of points of contact who can provide employees more information about the plan or explain their duties under the plan,
• an explanation of the alarm system used to notify employees of emergencies, and
• guidelines for training employees who will assist in a safe and orderly evacuation of other employees during a fire emergency.

10.5.2.1 Employee Review. The fire emergency action plan must be reviewed with new employees upon assignment to the facility and with any employee when the employee’s responsibilities under the plan change. The fire emergency action plan must be reviewed with all employees assigned to the facility whenever developed or changed and at least every three years.

10.5.2.2 Contractors. When the contract requires the submittal of a safety plan, the contractor is responsible for developing a fire emergency action plan that meets the requirements of paragraph 10.5.2. The fire emergency action plan shall be submitted to the contracting officer as part of the contractor’s safety plan. The fire emergency action plan shall be maintained at the job site throughout all phases of the contractor’s work. The contractor must review the fire emergency action plan with all contractor employees upon assigning them to work at the job site.

10.5.2.3 Exercise. The fire emergency action plan must be exercised at least annually by completing an evacuation drill.

10.5.3 Fire Response Plan
Each facility shall have a written fire response plan, and it must be available at the facility for employees to review. The fire response plan must include

• the overall fire response strategy for the facility,
• a list of expected fire scenarios,
• the planned response to each fire scenario,
• assignment of responsibilities for employee use of portable fire extinguishers,
• if applicable, the organizational statement for the facility fire brigade,
• if applicable, written agreements with local fire departments, and
• planned post-fire actions for returning the facility to normal operations.

10.5.3.1 Employee Review. The fire response plan must be reviewed with new employees upon assignment to the facility and with any employee when the employee’s responsibilities under the plan change. The fire response plan must be reviewed with all employees assigned to the facility whenever developed or changed and at least every three years.
10.5.3.2 Contractors. When the contract requires the submittal of a safety plan the contractor is responsible for developing a fire response plan that meets the requirements of paragraph 10.5.3. The fire response plan shall be submitted to the contracting officer as part of the contractor’s safety plan. The fire response plan shall be maintained at the job site throughout all phases of the contractor’s work. The contractor must review the fire response plan with all contractor employees upon assigning them to work at the job site.

10.6 Personal Protective Equipment (PPE)

10.6.1 Fire Brigades

Fire brigades shall be provided protective equipment that meets the requirements of NFPA 600 and OSHA 1910 Subpart L.

10.7 Other Safety Equipment

10.7.1 Fire Brigades

Fire brigades shall be provided with firefighting equipment that meets the requirements of NFPA 600 and OSHA 1910 Subpart L to enable performance of assigned response duties.

10.8 Safe Practices

10.8.1 Fire Suppression Systems

10.8.1.1 Buildings and Equipment. Fire suppression systems shall be installed in Reclamation facilities and on Reclamation equipment when required by applicable building or fire codes or when deemed necessary by a fire risk assessment conducted per paragraph 10.4.1.

10.8.1.2 Mobile Equipment. Fire suppression systems shall be installed in Reclamation-owned mobile equipment and in any General Services Administration (GSA)–owned mobile equipment under Reclamation control (including watercraft) when required by applicable fire codes or when deemed necessary by a fire risk assessment conducted per paragraph 10.4.1.

10.8.1.3 Design and Installation. All fire suppression systems shall be designed and installed to meet the requirements of applicable NFPA codes and standards, the IFC, and OSHA 1910 Subpart L.

10.8.1.4 Inspection, Maintenance, and Testing

10.8.1.4.1 Water-Based Systems. All water-based fire suppression systems shall be inspected, tested, and maintained to meet the requirements of NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire
Protection Systems, and OSHA 1910 Subpart L. These systems include sprinkler, deluge, and water mist systems; standpipes; water mains; and fire pumps.

10.8.1.4.2 CARBON DIOXIDE SYSTEMS. All carbon dioxide extinguishing systems shall be inspected, tested, and maintained to meet the requirements of NFPA 12, Standard on Carbon Dioxide Extinguishing Systems, and OSHA 1910 Subpart L.

10.8.1.4.3 CLEAN AGENT SYSTEMS. All clean agent fire extinguishing systems shall be inspected, tested, and maintained to meet the requirements of NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems, and OSHA 1910 Subpart L.

10.8.1.5 Records. As-built system installation drawings, hydraulic calculations, original acceptance test records, device manufacturer’s data sheets, and manufacturer’s operating instructions shall be retained for the life of the system.

10.8.2 Fire Alarm and Notification Systems

10.8.2.1 Buildings and Equipment. Fire alarm and notification systems shall be installed in Reclamation facilities and on Reclamation equipment when required by applicable building or fire codes or when deemed necessary by a fire risk assessment conducted per paragraph 10.4.1.

10.8.2.2 Mobile Equipment. Fire alarm and notification systems shall be installed in Reclamation-owned mobile equipment and in any GSA-owned mobile equipment under Reclamation control (including watercraft) when required by applicable fire codes or when deemed necessary by a fire risk assessment conducted per paragraph 10.4.1.

10.8.2.3 Design and Installation. All fire alarm and notification systems shall be designed and installed to meet the requirements of NFPA 72, National Fire Alarm and Signaling Code, the IFC, and OSHA 1910 Subpart L.

10.8.2.4 Inspection, Maintenance, and Testing. All fire alarm and notification systems shall be inspected, tested, and maintained to meet the requirements of NFPA 72 and OSHA 1910 Subpart L.

10.8.2.5 Records. As-built system installation drawings, hydraulic calculations, original acceptance test records, device manufacturer’s data sheets, and manufacturer’s operating instructions shall be retained for the life of the system.
10.8.3 Fire Extinguishers

10.8.3.1 Buildings. Portable fire extinguishers shall be provided throughout all Reclamation facilities.

10.8.3.2 Vehicles and Mobile Equipment. Portable fire extinguishers shall be provided in any Reclamation-owned vehicle and mobile equipment and any GSA-owned vehicle and mobile equipment under Reclamation control that is used as a transportation van/bus, service vehicle, special purpose vehicle, material hauling vehicle, boom truck, lift trucks (forklifts), construction equipment, watercraft, etc.

10.8.3.3 Selection, Installation, and Maintenance. The selection, installation, inspection, maintenance, recharging, and testing of portable fire extinguishers shall meet the requirements of NFPA 1, Fire Code; NFPA 10, Standard for Portable Fire Extinguishers; and OSHA 1910 Subpart L.

10.8.4 Fire Fighting Response

10.8.4.1 Strategy. Per paragraph 10.5.3, “Fire Response Plan,” all Reclamation facilities shall have an overall fire response strategy.

10.8.4.2 Incipient-Stage Fire. All Reclamation facilities shall determine through a fire risk assessment conducted per paragraph 10.4.1 and specify in the fire response plan written per paragraph 10.5.3 whether upon detection of an incipient-stage fire employees will be allowed to use portable fire extinguishers to attempt to extinguish the fire or whether employees will immediately evacuate the facility.

10.8.4.3 Portable Fire Extinguishers. If the fire risk assessment and fire response plan allow or assign employees to use portable fire extinguishers, the employees shall receive training that meets the requirements for NFPA 10 and OSHA 1910 Subpart L.

10.8.4.4 Fire Brigade

10.8.4.4.1 GENERAL. When deemed appropriate and necessary by a fire risk assessment conducted per paragraph 10.4.1, Reclamation facilities shall establish a fire brigade that meets the requirements of NFPA 600 and OSHA 1910 Subpart L.

10.8.4.4.2 CLASSIFICATION. Fire brigades shall be classified into one or more of the following types:

- Incipient stage firefighting
- Advanced exterior firefighting
- Interior structural firefighting
- Both advanced exterior and interior structural firefighting
10.8.4.5 Fire Department Coordination. Reclamation facilities shall coordinate with the local fire response department to outline the assistance responders will provide during a fire emergency, conduct pre-event planning, ensure equipment compatibility, and facilitate fire department familiarization and training at the Reclamation facility.

10.8.5 Impairments

10.8.5.1 Defining Impairments. A fire protection feature, such as water supply, sprinkler system, extinguishing system, alarm system, fire door, fire wall, ventilation fire damper, control switch, etc., that is taken out of service, not working as designed, showing a trouble signal, or damaged shall be defined as impaired.

10.8.5.2 Risk Management. Measures shall be taken to ensure that increased risks during the impairment are minimized and the duration of the impairment is limited.

10.8.5.3 Recording and Tracking. All impaired fire protection features shall be recorded in a log and tracked until returned to functional condition.

10.8.5.4 Tagging. All impaired fire protection features shall be tagged as out-of-service or impaired until returned to functional condition.

10.8.5.5 Return to Functional Condition. All impaired fire protection features shall be returned to functional condition as quickly as possible and verified functional by testing.

10.8.5.6 Long-Term Impairments. The Regional Authority Having Jurisdiction (AHJ) and Regional Safety Manager shall be notified of any fire protection feature impairment that is expected to last or has lasted longer than 24 hours.

10.8.6 Building Evacuation

10.8.6.1 Exit Signs. Exits from all buildings, shops, and other facilities in which personnel work or which are open to the public shall be marked and illuminated per the requirements of NFPA 101.

10.8.6.2 Evacuation Diagram. When deemed appropriate and necessary by a fire risk assessment conducted per paragraph 10.4.1, Reclamation facilities shall post evacuation diagrams reflecting the actual floor arrangements and exit locations on each floor in a location and manner established by the fire risk assessment. Per NFPA 101 the evacuation diagrams are required in facilities classified as assembly occupancies.

10.8.6.3 Exit Doors. Exit doors shall not be locked in the direction of egress when the building is occupied.

10.8.6.4 Exit Paths. Exit paths shall always be clear of obstructions.
10.8.6.5 **Means of Egress.** The means of egress for all buildings shall meet the requirements of NFPA 101.

10.8.6 Delayed Evacuation

10.8.6.1 **DELAYED EVACUATION PLAN.** Facilities with critical operations that must be shut down in an orderly manner during an emergency event evacuation shall have a written delayed evacuation plan. The delayed evacuation plan shall designate personnel for delayed evacuation.

10.8.6.2 **RISK ASSESSMENT.** A risk assessment for the delayed evacuation shall be completed and documented. The risk assessment shall consider at minimum NFPA 101, paragraphs 40.2.5.2.2, A.4.8.2.1(3), and A.40.2.5.2.2 (2018 edition). The written risk assessment shall be maintained and reviewed with employees as part of the fire emergency action plan. All risks identified in the risk assessment shall be mitigated to the greatest extent possible.

10.8.7 **Hot Work Operations**

10.8.7.1 **Hot Work Operations Plan.** All Reclamation facilities shall have a written hot work operations plan. NFPA 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*, shall be used as a guideline for the hot work operations plan and hot work permit system. The hot work operations plan shall address the following hot work operations/equipment:

- Welding and cutting processes
- Open flames
- Heat treating
- Grinding
- Thawing pipe
- Powder-driven fasteners
- Hot riveting
- Torch-applied roofing
- Similar applications producing or using spark, flame, or heat

10.8.7.2 **Designated Areas.** Hot work operations shall be conducted in designated areas that meet the requirements of NFPA 51B and are kept fire safe (noncombustible or fire-resistive construction, free of combustible and flammable contents, and suitably segregated from adjacent areas by a 35-foot combustible-free space or a barrier constructed of noncombustible materials).

10.8.7.3 **Hot Work Permit System.** A hot work permit system shall be used for all hot work operations conducted outside of designated areas established per paragraph 10.8.7.2.
10.8.8 Smoking

10.8.8.1 Facilities. Smoking shall not be allowed inside or within 25 feet of any entrance or air intake to a Reclamation facility.

10.8.8.2 Outdoors. Smoking shall not be allowed within 25 feet of any outdoor storage areas or any fuel dispensing areas.

10.8.8.3 Vehicles and Mobile Equipment. Smoking shall not be allowed in any Reclamation-owned vehicles and mobile equipment or any GSA-owned vehicles and mobile equipment under Reclamation control (including watercraft).

10.8.8.4 Signage. No Smoking or Open Flames signs shall be posted in all areas where smoking is prohibited.

10.8.8.5 Designated Areas. Designated smoking areas shall be established at Reclamation facilities and shall be located at least 25 feet from any entrance or air intake to the facility.

10.8.8.6 Disposal. Cigarettes and other smoking waste shall be discarded only into containers designed and listed by a Nationally Recognized Testing Laboratory (NRTL) for disposal of smoking materials.

10.8.9 Internal Combustion Engines

10.8.9.1 Spark Arrester. Any internal combustion engine used in proximity to grass, brush, timber, and similar cellulose materials shall be equipped with a spark arrester that meets the performance and maintenance requirements of United States Department of Agriculture Forest Service Standard 5100-1d, Standard for Spark Arresters for Internal Combustion Engines.

10.8.9.2 Wildfire Hazard. Any vehicles or equipment with internal combustion engines used in proximity to grass, brush, timber, and similar cellulose materials shall be evaluated as a potential wildfire ignition hazard. The evaluation shall include potential ignition sources such as hot surfaces, sparks, etc.

10.8.9.3 Flammable Vapors Hazard. Any vehicles or equipment with internal combustion engines used in proximity to flammable vapors or gases shall be evaluated as a potential ignition hazard. The evaluation shall include potential ignition sources such as engine overspeed, hot surfaces, sparks, etc.

10.8.10 Open Flame Devices

Open fire and flame devices, such as incinerators, torches, and controlled fires, shall not be left unattended.
10.8.11 Cleaning and Degreasing
Gasoline or liquids with a flashpoint below 100 degrees Fahrenheit shall not be used for cleaning and degreasing. Only nonflammable liquids or liquids with a flashpoint above 100 degrees Fahrenheit shall be used for cleaning and degreasing.

10.8.12 Explosive Gases and Vapors
Open flames or heating elements shall not be used where flammable gases or vapors may be present.

10.8.14 Housekeeping
10.8.14.1 General Requirements. Housekeeping at all Reclamation facilities and job sites shall be maintained by keeping all areas clean and orderly and by removing all unnecessary combustible and noncombustible materials, waste, and debris at the end of each work shift or at least daily.

10.8.14.2 Collection of Waste Materials
10.8.14.2.1 CONTAINERS. Use NRTL-labeled, self-closing, metal containers to collect waste saturated with flammable or combustible liquids. Use only noncombustible or NRTL-labeled, nonmetallic containers to collect waste and rubbish.

10.8.14.2.2 SEPARATION OF COMBUSTIBLE ITEMS. Keep combustible items separate from other types of combustible items and from noncombustible items.

10.8.14.2.3 CONTAINER LABELS. All containers, except in office settings, used to collect waste and rubbish shall be affixed with a label indicating the intended contents, such as trash, oily rags, scrap metal, etc.

10.8.14.3 Vehicles and Mobile Equipment
10.8.14.3.1 GENERAL REQUIREMENTS. Housekeeping of all Reclamation-owned vehicles and mobile equipment and all GSA-owned vehicles and mobile equipment under Reclamation control (including watercraft) shall be maintained by keeping them clean and orderly and by removing all unnecessary combustible and noncombustible materials, waste, and debris at the end of each work shift or at least daily.

10.8.14.3.2 CLEANING. The engine compartments, mechanical and hydraulic operation components, and storage and utility areas of vehicles and mobile equipment shall be cleaned as needed to prevent the buildup of combustible debris and oily deposits.
10.8.14.4 Inspections

10.8.14.4.1 DAILY. Daily housekeeping checks of job sites shall be conducted by all employees. Records are not required for the daily checks.

10.8.14.4.2 MONTHLY. All Reclamation facilities and job sites shall conduct and record monthly housekeeping inspections. All issues noted during the inspection shall be listed in the inspection record. All housekeeping issues noted during the inspection shall be corrected immediately or the facility shall track the issues until corrected.

10.8.15 Grounds Maintenance

10.8.15.1 General Requirements. Grounds at all Reclamation facilities and job sites shall be maintained by keeping grounds areas clean and the surrounding vegetation controlled.

10.8.15.2 Cleaning. Rubbish and waste around facilities and job sites shall be collected and removed on a regular schedule or as needed to prevent accumulation.

10.8.15.3 Outdoor Waste Disposal. Waste and rubbish materials placed outdoors or in dumpsters for disposal shall be located at least 20 feet from structures.

10.8.15.4 Vegetation. The growth of tall grass, brush, and weeds surrounding facilities and job sites shall be controlled with trimming and thinning on a regular schedule or as needed to reduce fire risk.

10.8.15.5 Fire Break. A minimum three-foot clear fire break shall be maintained at all facilities and job sites.

10.8.16 Separation of Buildings and Structures

Non-fire-resistive buildings or structures shall be at least 25 feet apart. Consider a group of non-fire-resistive buildings with a total ground floor area of no more than 2,000 square feet as one building for this purpose, provided that each building in the group is at least 10 feet away, on each side, from other buildings.

10.8.17 Heating Devices


10.8.17.2 Approval. The use of temporary portable heating devices must be approved via a permit issued by regional or area management for Reclamation-owned facilities and job sites or by the GSA building manager for GSA-owned facilities.
10.8.17.3 Permit Request. The following information shall be submitted when requesting a permit for a temporary portable heating device:

- Proposed placement, including distance from combustibles
- Service, maintenance, and surveillance schedules
- Proposed fuel storage and refueling system
- Method for prompt detection of gaseous contamination or oxygen deficiency

10.8.17.4 Data Plates. The heating device shall have a permanently affixed data plate that provides the following information:

- Required clearances
- Ventilation requirements
- Fuel type and input pressure
- Lighting and extinguishing instructions
- Electrical power supply characteristics

10.8.17.5 Wood Floors. Heaters that are not suitable for use on wood floors shall be affixed with labels that instruct users not to place them on wood or other combustible floors. When using such heaters, place them on noncombustible material that is equivalent to at least one-inch thick concrete and extends at least two feet beyond the heater in all directions.

10.8.17.6 Combustible Covering. Do not use heaters near combustible tarpaulins, canvas fabric, or similar coverings. Locate heaters at least 10 feet away from combustible coverings, and securely fasten or tie down the coverings.

10.8.17.7 Stability. Place heaters on level surfaces to prevent tipping.

10.8.17.8 Installation. Install, vent, operate, and maintain heaters in accordance with the manufacturers’ instructions.

10.8.17.9 Spark Arresters. Install spark arresters on smokestacks that could otherwise permit sparks to escape.

10.8.17.10 Carbon Monoxide Monitors. Facilities using portable heating devices powered by combustible fuel must have functional carbon monoxide (CO) monitors installed. The CO monitors must be inspected and tested following manufacturer’s instructions.


10.8.17.12 Office Spaces. Only electric portable space heaters equipped with tip-over safety switches, overheat protection, and thermostatic controls shall be permitted for use in office spaces.

10.8.17.13 Electric Space Heaters

10.8.17.13.1 NRTL Listing. All electric space heaters shall be listed by a NRTL.
10.8.17.13.2 **TIPPING.** Electric space heaters shall be designed and located so they cannot be easily overturned.

10.8.17.13.3 **CLEARANCE.** A minimum three feet of clearance from combustible materials shall be maintained around all electric space heaters.


10.8.17.15 **Natural Gas Heaters.** Natural gas heaters shall meet the requirements of NFPA 1 and NFPA 54, *National Fuel Gas Code.*

10.8.17.16 **Liquefied Petroleum Gas (LPG) Heaters.** LPG heaters shall meet the requirements of NFPA 1 and NFPA 58, *Liquefied Petroleum Gas Code.*

10.8.17.17 **Restricted Use**

10.8.17.17.1 **OPEN FLAME–TYPE HEATERS.** Open flame–type heating devices with exposed fuel below the flame shall not be used.

10.8.17.17.2 **LUBRICATION OR SERVICE AREAS.** Heaters in lubrication or service areas where employees do not dispense or transfer flammable liquids shall be an approved-type heater installed at least 18 inches above the floor and protected from damage. Heaters in areas where employees dispense flammable liquids shall be a type approved for garages and installed at least 8 feet above the floor.

### 10.9 **Definitions**

- **advanced exterior firefighting**
  - Offensive firefighting performed outside of an enclosed structure when the fire is beyond the incipient stage.

- **Authority Having Jurisdiction (AHJ)**
  - An organization, office, or individual responsible for enforcing the requirements of a code or standard or for approving equipment, materials, an installation, or a procedure. A single AHJ is designated from each region.

- **fire brigade**
  - An organized group of employees who are knowledgeable, trained, and skilled in at least basic firefighting operations, and whose full-time occupation might or might not be the provision of fire suppression and related activities.

- **flash point**
  - The minimum temperature of a liquid at which sufficient vapor is given off to form an ignitable mixture with the air near the surface of the liquid or within the vessel used, as determined by the appropriate test procedure and apparatus.
Reclamation Safety and Health Standards
October 2019

Section 10: Fire Prevention and Protection

impairment
A condition where a fire protection system or unit or portion thereof is out of order and therefore may not function in a fire event.

incipient stage fire
A fire that is in the initial or beginning stage and that can be controlled or extinguished by portable fire extinguishers, Class II standpipes, or small hose systems without the need for protective clothing or breathing apparatus.

interior structural firefighting
Fire suppression, rescue, or both, inside of buildings or enclosed structures that are experiencing a fire beyond the incipient stage.

means of egress
A continuous and unobstructed way of travel from any point in a building or structure to a public way consisting of three separate and distinct parts: (1) the exit access, (2) the exit, and (3) the exit discharge.

10.10 References


Occupational Safety and Health Administration. 29 CFR 1910, Subpart L, *Fire Protection*.


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