

# NFPA 600

## Industrial

## Fire

## Brigades

## 1992 Edition



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There is a concern that the growing use of synthetic materials may produce more or additional toxic products of combustion in a fire environment. The Board has, therefore, asked all NFPA technical committees to review the documents for which they are responsible to be sure that the documents respond to this current concern. To assist the committees in meeting this request, the Board has appointed an advisory committee to provide specific guidance to the technical committees on questions relating to assessing the hazards of the products of combustion.

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**NFPA 600**  
**Standard on**  
**Industrial Fire Brigades**  
**1992 Edition**

This edition of NFPA 600, *Standard on Fire Brigades*, was prepared by the Technical Committee on Loss Prevention Procedures and Practices and acted on by the National Fire Protection Association, Inc. at its Fall Meeting held November 18-20, 1991 in Montréal, Québec, Canada. It was issued by the Standards Council on January 17, 1992, with an effective date of February 10, 1992, and supersedes all previous editions.

The 1992 edition of this document has been approved by the American National Standards Institute.

**Origin and Development of NFPA 600**

In 1902 NFPA adopted *Suggestions for Organizing Private Fire Departments* recommended by the Committee on Private Fire Department Regulations. In 1912 NFPA adopted two pamphlets, *Organization and Execution of Exit Drills* and *Organization and Drilling of Private Fire Brigades*, on recommendation of the Committee on Private Fire Departments and Fire Drills. In 1924 the NFPA adopted *Suggestions for the Organization, Drilling and Equipment of Private Fire Brigades* on recommendation of the Committee on Field Practice, and revisions were adopted in 1930, 1937, and 1949.

Jurisdiction for the publication was transferred in 1948 to the new Committee on Fire Brigades and Watchmen, and a revised edition was published in 1955. The guide was completely revised in 1967.

In 1969 the Committee was reorganized as the Technical Committee on Loss Prevention Procedures and Practices, and the guide was reconfirmed in 1975. In 1981 a complete revision was accomplished, and partial revision was made in the 1986 edition, as well as a redesignation from NFPA 27 to NFPA 600.

In 1992 the document was completely revised to a standard to provide a minimum level of occupational safety and health for industrial fire brigade members consistent with OSHA. The standard incorporates for the first time the concepts of advanced exterior fire fighting and site-specific hazards. These are needed for industrial fire brigades to address properly the types of situations they encounter.

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NOTE: Membership on a Committee shall not in and of itself constitute an endorsement of the Association or any document developed by the Committee on which the member serves.

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**NFPA 600**  
**Standard on**  
**Industrial Fire Brigades**

**1992 Edition**

NOTICE: An asterisk (\*) following the number or letter designating a paragraph indicates explanatory material on that paragraph in Appendix A.

Information on referenced publications can be found in Chapter 7 and Appendix B.

**Foreword**

A major concern of industrial fire protection professionals is the protection of employees and property from the threat of fire in the workplace. In 1980 the Occupational Safety and Health Administration defined its requirements for fire brigades. These requirements apply to fire brigades once corporate/local management, in its role as an authority having jurisdiction, has determined that it wants a fire brigade at a facility.

In 29 CFR 1910 Subpart L, OSHA, two types of fire brigades are defined in an attempt to establish levels of fire brigade function and to identify the training and safety requirements for each of those levels. Ever since that time industrial fire protection professionals have wrestled with categorizing every existing fire brigade into either the incipient stage category or the interior structural category.

In attempting to develop a state-of-the-art industrial fire brigade standard, the Technical Committee on Loss Prevention Procedures and Practices has followed OSHA's lead in setting requirements based on the incipient and interior structural fire brigade definitions.

The adoption of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, by the NFPA in 1987 brought about an entirely new perspective — that of inclusion of the industrial fire brigades in the same category as municipal fire departments. While the work done by the Technical Committee on Fire Department Occupational Safety and Health is admirable and is intended to safeguard all fire fighters, the Loss Prevention Procedures and Practices Committee believes that a separate industrial fire brigade standard is needed.

While each and every fire brigade is unique, just as each and every municipal fire department is unique, industrial fire brigades, including those that may be referred to as industrial fire departments, have far different needs in many respects from those of municipal fire departments.

The primary difference between industrial fire brigades and municipal fire departments is that industrial fire brigades must deal with conditions and hazards that are limited to those which exist within a given facility that is generally privately owned and operated. While these site-specific hazards can and do represent the same degree of

hazard to both industrial fire brigade members and municipal fire fighters, industrial fire brigade members are not usually concerned with, nor are they expected to deal with, hazards and emergencies beyond the boundaries of the facility that the brigade serves.

In addition to this primary difference, it must be remembered that at an industrial facility a program of Occupational Safety and Health has already been established for all personnel including members of the fire brigade. Further, fire brigades constituted in accordance with this standard will, of necessity, have a much more thorough knowledge of the buildings and facilities to which they respond than do municipal fire fighters who must respond to a significantly greater variety of buildings and facilities, many of which have unidentified and undisclosed hazards.

A municipal fire department, as a local government function, must provide a service to a very broad-based municipality, with a multitude of unknown factors at every given response. Such variables as property size and accessibility; building size, construction, and contents; manufacturing process hazards; fixed fire extinguishing systems and special agent availability; storage and use of solvents, oils, chemicals, or other hazardous materials are all potential unknown factors that can hinder the effectiveness of any municipal fire department and place a greater safety risk on the fire fighters.

It is this distinct advantage that achieves a higher level of fire brigade safety and allows for the fundamental difference between a municipal fire department and an industrial fire brigade.

## Chapter 1 General

### 1-1 Scope.

**1-1.1** This standard contains minimum requirements for organizing, operating, training, and equipping industrial fire brigades. It also contains minimum requirements for the occupational safety and health of industrial fire brigade members while performing fire fighting and related activities.

**1-1.2\*** This standard applies to any organized private, industrial group of employees having fire fighting duties, such as emergency brigades, emergency response teams, fire teams, and plant emergency organizations.

NOTE: This standard is intended to meet or exceed the fire brigade-related requirements of the Occupational Safety and Health Standards, Subpart L, Fire Protection [Code of Federal Regulations (CFR), Title 29, Chapter XVII, Part 1910], of the Occupational Safety and Health Administration (OSHA), Department of Labor-U.S. Government. Further, this standard is intended to ensure the industrial fire brigade member with an appropriate degree of occupational safety and health while performing fire brigade duties just as NFPA 1500 ensures an appropriate degree of occupational safety and health for the municipal fire department member.

**1-1.3** This standard shall not apply to industrial fire departments.

**1-2 Purpose.** The purpose of this standard is to provide minimum requirements for organization, operation, training, and occupational safety and health for industrial fire brigades.

NOTE: Requirements for the establishment of industrial fire brigades are established by the authority having jurisdiction.

**1-3 Alternate Requirements.** The application of the performance objectives of this standard may vary for many industrial operations. The authority having jurisdiction shall be permitted to examine and approve organization, operations, training, and occupational safety and health requirements that provide an equivalent level of safety to that required by this standard.

**1-4\* Brigade Limits of Actions and Responsibilities.**

**1-4.1** The degree of potential exposure to a hazardous environment and the degree of training shall determine the limits of any fire brigade action and responsibility. The written fire brigade organizational statement and standard operating procedures shall define these limits.

**1-4.2\*** At facilities where designated employees are intended to function as the first responders to incipient fires, the fire brigade shall assume command of the incident once it arrives on the fire scene.

**1-4.3 Limits for Fire Brigades Assigned Incipient Fire Fighting Duties.**

**1-4.3.1** Interior fires shall be considered incipient stage when fire brigade members:

- (a) Are able to safely fight the fire in normal work clothing, and
- (b) Are not required to crawl or take other evasive action to avoid smoke and heat, and
- (c) Are not required to wear interior structural fire fighting clothing or self-contained breathing apparatus, and
- (d) Are able to fight the fire effectively with portable extinguishers or handlines flowing up to 125 gpm (473 L/min).

**1-4.3.2** Exterior fires shall be considered appropriate for defensive action outside of the fire control zone by fire brigade members who have been assigned incipient fire fighting duties when:

- (a) The organizational statement lists it as a duty of the fire brigade, and it is covered by the standard operating procedures, and
- (b) The fire brigade has received training for that activity, and
- (c) Self-contained breathing apparatus and interior structural fire fighting clothing are not required, and

- (d) Personal evasive action is not required, and

- (e) They are able to perform defensive action effectively, using handlines flowing up to 300 gpm (1140 L/min), master streams, or similar devices for the manual application of specialized agents.

**1-4.4 Limits for Fire Brigades Assigned Only Advanced Exterior Fire Fighting Duties.** Exterior fires shall be considered appropriate for offensive action within the fire control zone by fire brigade members who have been assigned advanced exterior fire fighting duties when:

- (a) The organizational statement lists it as a duty of the fire brigade, and it is covered by the standard operating procedures, and
- (b) The fire brigade has received training for that activity, and
- (c) Self-contained breathing apparatus and protective clothing for structural fire fighting are provided, and
- (d) They are able to perform offensive action effectively, using handlines flowing up to 300 gpm (1140 L/min), master streams, or similar devices for the manual application of specialized agents.

**1-4.5 Limits for Fire Brigades Assigned Only Interior Structural Fire Fighting Duties.** Interior structural fires shall be permitted to be attacked within the fire control zone by fire brigade members who have been assigned interior fire fighting duties when:

- (a) The organizational statement lists it as a duty of the fire brigade, and it is covered by the standard operating procedures, and
- (b) The fire brigade has received training for that activity, and
- (c) SCBA and interior structural fire fighting clothing has been provided, and
- (d) Brigade members are able to perform offensive actions effectively using handlines flowing up to 300 gpm (1140 L/min), master streams, or similar devices for the manual application of specialized agents.

**1-4.6 Limits of Fire Brigades Assigned Both Advanced Exterior and Interior Structural Fire Fighting Duties.** Both exterior fires and interior structural fires shall be considered appropriate for offensive actions within the fire control zone for fire brigade members who have been assigned both advanced exterior and interior fire fighting duties when:

- (a) The organizational statement lists it as a duty of the fire brigade, and it is covered by the standard operating procedures, and
- (b) The fire brigade has received training for that activity, and
- (c) Self-contained breathing apparatus and interior structural fire fighting clothing are provided, and
- (d) They are able to perform offensive action effectively, using handlines flowing up to 300 gpm (1140 L/min), master streams, or similar devices for the manual application of specialized agents.

### 1-5\* Definitions.

**Advanced Exterior Fire Fighting.** Offensive fire fighting performed outside of an enclosed structure when the fire is beyond the incipient stage (*see definition*). Advanced exterior fire fighting often requires fire brigade members to contain, control, and extinguish exterior fires involving site-specific hazards, such as flammable and combustible liquid spills or leaks, liquefied petroleum gas releases, and electrical substations. Advanced exterior fire fighting is usually performed using handlines flowing up to 300 gpm (1140 L/min), master streams, or similar devices for the manual application of specialized agents. Protective clothing is required and the use of self-contained breathing apparatus (SCBA) may be required.

**Approved.** Acceptable to the "authority having jurisdiction."

NOTE: The National Fire Protection Association does not approve, inspect or certify any installations, procedures, equipment, or materials nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization concerned with product evaluations which is in a position to determine compliance with appropriate standards for the current production of listed items.

**Authority Having Jurisdiction.** The "authority having jurisdiction" is the organization, office or individual responsible for "approving" equipment, an installation or a procedure.

NOTE: The phrase "authority having jurisdiction" is used in NFPA documents in a broad manner since jurisdictions and "approval" agencies vary as do their responsibilities. Where public safety is primary, the "authority having jurisdiction" may be a federal, state, local or other regional department or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department, health department, building official, electrical inspector, or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the "authority having jurisdiction." In many circumstances the property owner or his designated agent assumes the role of the "authority having jurisdiction"; at government installations, the commanding officer or departmental official may be the "authority having jurisdiction."

**Combustible Liquid.** A liquid having a flash point at or above 100°F (38.8°C).

**Defensive Fire Fighting.** The mode of manual fire control in which the only fire suppression activities taken are limited to those required to keep a fire from extending from one area to another.

**Designated Employee.** An employee who is not a member of a fire brigade but who has been properly trained to use portable fire extinguishers or small hose lines to fight incipient fires in the employee's immediate work area.

**Drill.** A simulated emergency exercise involving a credible emergency and requiring the fire brigade to perform planned emergency operations for the purpose of evaluating the effectiveness of the training and education program and the competence of fire brigade members in performing required duties and functions.

**Duty.** A fire-related service, function, or task identified in the fire brigade organizational statement and assigned to a member to perform.

**Education.** The process of imparting knowledge or skill through systematic instruction. It may not require formal classroom instruction.

**Emergency Operations.** Activities related to emergency incidents, including response to the scene of the incident and specific duties performed at the scene.

**Enclosed Structure.** A structure with a roof or ceiling and at least two walls that may present fire hazards to employees such as accumulations of smoke, toxic gases and heat, similar to those found in buildings.

**Fire Brigade.** An organized group of employees within an industrial occupancy who are knowledgeable, trained, and skilled in at least basic fire fighting operations, and whose full-time occupation may or may not be the provision of fire suppression and related activities for their employer.

**Fire Brigade Apparatus.** A fire brigade emergency response vehicle designed and intended primarily for fire suppression, rescue, or other specialized function. This apparatus includes pumpers, foam apparatus, aerial ladders, rescue vehicles, and other such apparatus.

**Fire Brigade Management.** The individual designated by top management as being responsible for the organization, management, and functions of the industrial fire brigade.

**Fire Brigade Training Coordinator.** The designated company representative with responsibility for coordinating effective, consistent, and quality training within the fire brigade training and education program.

**Fire Control Zone.** The area immediately surrounding a fire that extends far enough, based on safety and the degree of hazard, to prevent adverse effects from the fire to fire brigade members and other employees outside of the zone.

**Flammable Liquid.** A liquid having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 psi (2068 mm Hg) at 100°F (37.8°C).

**Hazardous Atmosphere.** Any atmosphere that is oxygen deficient or that contains a toxic or disease producing contaminant. A hazardous atmosphere may or may not be immediately dangerous to life and health.

**Incident Management System.** The management system or command structure used during emergency operations to identify clearly who is in command of the incident and what roles and responsibilities are assigned to various members.

**Incipient Fire Fighting.** Fire fighting performed inside or outside of an enclosed structure or building when the fire has not progressed beyond incipient stage.

**Incipient Stage.** Refers to the severity of a fire where the progression is in the early stage and has not developed beyond that which can be extinguished using hand portable fire extinguishers or handlines flowing up to 125 gpm (473 L/min). A fire is considered to be beyond the incipient stage when the use of protective clothing or self-contained breathing apparatus is required or a fire brigade member is required to crawl on the ground or floor to stay below smoke and heat.

**Industrial Fire Department.\*** An organization providing fire suppression, rescue, and related activities at a single facility or facilities under the same management, whether for profit, not for profit, or government owned or operated including occupancies such as industrial, commercial, mercantile, warehouse, and institutional. The industrial fire department is generally trained and equipped for specialized operation based on site-specific hazards present at the facilities.

Groups of teams organized to perform specialized rescue services, but who do not perform fire suppression activities, are not considered as industrial fire departments.

**Industrial Occupancy.** For the purpose of this standard, industrial occupancies include industrial, commercial, mercantile, warehouse, power plant (utility), and institutional or similar occupancy, including for-profit, not-for-profit, and governmental facilities.

**Interior Structural Fire Fighting.\*** The physical activity of fire suppression, rescue, or both, inside of buildings or enclosed structures that are involved in a fire situation beyond the incipient stage.

**Master Stream.** A portable or fixed fire fighting appliance supplied by either hose lines or fixed piping and that has the capability of flowing in excess of 300 gpm (1140 L/min) of water or water-based extinguishing agent.

**Medically Fit.** There are no known medical limitations that would interfere with the process of making decisions and providing direction while exposed to a stressful environment, as determined by a qualified physician.

**Offensive Fire Fighting.** The mode of manual fire control in which manual fire suppression activities are concentrated on reducing the size of a fire to accomplish extinguishment.

**Performance Standards.** Minimum requirements for knowledge and skills that must be provided to or demonstrated by the fire brigade member upon completion of a training or education session.

**Physically Fit.** As determined by a qualified physician, there are no known physical or medical limitations that would interfere with the performance of strenuous heavy lifting and pulling or with the use of self-contained breathing apparatus (SCBA) that may be required during emergency operations.

**Qualified Physician.** A licensed medical doctor qualified to provide professional expertise in the areas of occupational safety and health as they relate to emergency response activities.

**Shall.** Indicates a mandatory requirement.

**Should.** Indicates a recommendation or that which is advised but is not required.

**Site-Specific Hazard.** A hazard that is present at the specific facility for which the fire brigade has been organized.

**Specialized Agents.** Fire extinguishing agents, such as dry chemicals, dry powders, carbon dioxide, halon, and other such non-water-based agents.

**Standard.** A document containing only mandatory provisions using the word "shall" to indicate requirements. Explanatory material may be included only in the form of text notes or in an appendix.

**Standard Operating Procedure.** A written procedure that establishes a standard course of action and documents the functional limitations of the fire brigade members in performing emergency operations.

**Training.** The process of achieving proficiency through instruction and hands-on practice in the operation of equipment and systems that are expected to be used in the performance of assigned duties.

## Chapter 2 Requirements for All Fire Brigades

### 2-1 General Administration.

**2-1.1\* Corporate/Local Management.** Corporate/local management shall be responsible for:

- (a) Evaluating the site-specific conditions and hazards to determine site-specific duties to be assigned to the fire brigade.
- (b) Assigning the site-specific duties of the fire brigade.
- (c) Establishing, reviewing, and maintaining a written fire brigade organizational statement.

- (d) Establishing lines of authority and assigning responsibilities to ensure that the components of the fire brigade organizational statement are accomplished.

- (e) Establishing a written policy for the occupational safety and health of fire brigade members.

- (f) Establishing a written policy for the adoption and implementation of an incident management system.

- (g) Developing or adopting performance-based standards that establish baseline levels of proficiency in skills, knowledge, and the safety measures necessary for fire brigade members to accomplish the site-specific duties described in the fire brigade organizational statement.

- (h) Developing, reviewing, and maintaining written standard operational procedures for site-specific conditions and hazards.

- (i) Establishing a policy to ensure that each brigade member receives sufficient training and education to perform his or her assigned duties within the brigade.

- (j) Establishing a policy to ensure that the records required in this standard are maintained.

- (k) Establishing a policy to ensure that annual funds are budgeted and available for equipment, vehicles, training and education, and other necessary items to accomplish these objectives.

**2-1.2** Management shall establish, review, and maintain a fire brigade organizational statement.

**2-1.2.1\*** A written fire brigade organizational statement shall be prepared and maintained. This policy statement, which establishes the existence of the fire brigade, shall include:

- (a) Basic organizational structure.
- (b) The type, amount, and frequency of training and education to be provided.
- (c) The expected number of members in the brigade.
- (d) The duties that the brigade is expected to perform in the workplace, which define the limits of fire brigade duties.
- (e) The shifts during which the brigade shall be available for response.

**2-1.2.2\*** The organizational statement shall be available for inspection by the authority having jurisdiction, the fire brigade members, and their designated representatives.

**2-1.3** Management shall establish lines of authority and assign responsibilities to ensure that the components of the fire brigade organizational statement are accomplished.

**2-1.3.1** Management shall designate the responsible individual for the administration of the fire brigade organizational statement and the training and education program.

**2-1.3.2** Management shall establish responsibility for initiating, maintaining, and enforcing standard operational procedures to ensure the safety and health of fire brigade members.

**2-1.3.3** Management shall establish a policy to ensure that each fire brigade member cooperates, participates, and complies with the provisions of the fire brigade organizational statement and the training and education program.

**2-1.4\*** Management shall ensure that fire brigade members are a part of a corporate/local company occupational safety and health policy that identifies specific goals and objectives for the prevention and elimination of accidents, injuries, illness, and fatalities while performing fire brigade duties.

**2-1.4.1** Management shall ensure that fire brigade members are adequately represented on corporate/local company occupational safety and health committees as they relate to members performing assigned fire brigade duties.

**2-1.4.2\*** Management shall delegate the duties and responsibilities of the fire brigade safety program to a qualified individual(s).

**2-1.4.3** The safety program shall include:

- (a) Records and data management
- (b) Liaison with management, equipment suppliers, site or corporate safety, and medical and health departments
- (c) Development and maintenance of standard operating procedures
- (d) Accident prevention
- (e) Equipment specification and maintenance

- (f) Accident investigation
- (g) Incident scene safety
- (h) Training and education.

**2-1.5\*** All records associated with the operation of the fire brigade required in this standard shall be maintained in a location where they are available for inspection by the authority having jurisdiction.

## **2-2 General Operations.**

**2-2.1** An incident management system shall be established with written procedures applying to all members involved in emergency operations.

NOTE: For information on incident management systems see NFPA 1561, *Standard on Fire Department Incident Management System*.

**2-2.1.1** All members involved in emergency operations shall be familiar with the incident management system.

**2-2.1.2** The incident management system shall identify roles and responsibilities relating to the safety of fire brigade operations. Safety responsibilities shall be assigned to supervisory personnel at each level of the organization.

**2-2.1.3** This system shall include the roles and responsibilities of any responding public fire department and other outside agencies.

**2-2.1.4\*** A standard system shall be used to identify and account for each fire brigade member present at the scene of the emergency.

**2-2.1.5\*** Performance-based standards that establish minimum levels of proficiency in both skills and knowledge to permit all fire brigade members to safely accomplish the site-specific duties described in the fire brigade organizational statement shall be developed or adopted.

**2-2.2** Standard operating procedures for site-specific conditions and hazards shall be developed, reviewed, and maintained.

**2-2.2.1** These procedures shall be maintained in written form and shall address the site-specific functions identified in the fire brigade organizational statement.

**2-2.2.2\*** These procedures shall include information regarding site-specific hazards to which fire brigade members may be exposed during a fire or other emergency.

**2-2.2.3** These procedures shall address the site-specific limitations of emergency operations.

**2-2.2.4** These procedures shall be accessible to all fire brigade members.

**2-2.2.5** These procedures shall ensure that the shift fire brigade leader is notified of all major fire protection systems and equipment that are out of service.

## **2-3 General Education, Training, and Drills.**

**2-3.1** A training and education program shall be established and maintained for all fire brigade members to ensure competency. Members shall be trained to a level of

competency commensurate with the duties members are expected to perform. All members shall be instructed in the operation of all of the fire fighting and rescue equipment and systems they are expected to use.

**2-3.2** Before participating in emergency operations, fire brigade members shall meet the minimum skills and knowledge requirements of a performance-based training and education program.

**2-3.3** Fire brigade members shall not perform any duties for which they have not received training and education.

**2-3.4** The quality and frequency of training and education provided shall ensure that fire brigade members are capable of performing their assigned duties in a safe manner that does not present a hazard to themselves or endanger other personnel.

**2-3.5** It shall be an established goal of training and education to prevent accidents, injury, death, or illness while performing any fire brigade function.

**2-3.6\*** A designated fire brigade training coordinator shall provide instruction to the fire brigade or shall verify the qualifications of other instructors providing training and education to fire brigade members.

**2-3.7\*** Fire brigade members designated as leaders shall receive training and education commensurate with their duties. Such training and education shall be more comprehensive than that provided to the other fire brigade members.

**2-3.8\*** Drills shall be conducted as often as necessary to evaluate the effectiveness of the fire brigade training and education program and the competence of fire brigade members in performing assigned duties. Lessons learned shall be evaluated and documented, and additional training shall be provided as necessary to improve performance that is below established standards.

**2-3.9\*** The training and education provided to members shall include a review of the applicable provisions of this standard.

**2-3.10\*** The training and education program shall include the principles and practices of fire fighting and emergency response to the extent required by the type of industrial fire brigade established and by the assignment within the brigade.

**2-3.11** The training and education program shall address new hazards, equipment, and procedures introduced into the facility.

**2-3.12\*** Training provided to fire brigades shall develop and increase competency in life safety, property conservation, and reduction of business interruption.

**2-3.13** Training shall include site-specific hazards. (See 2-2.2.2.)

#### **2-3.14 Training Records.**

**2-3.14.1** Individual training records shall be maintained for each member of the fire brigade.

**2-3.14.2** Training records shall include, but not be limited to, courses completed, subjects studied, refresher courses completed, and other evaluations of skills and knowledge, drill attendance records, and leadership or other special accomplishments related to fire brigade activities.

**2-3.14.3** Training records shall be maintained and be available for inspection by the authority having jurisdiction.

**2-3.14.4** Training records shall be reviewed periodically by fire brigade management and the fire brigade training coordinator to evaluate training needs and equipment needs of the brigade.

#### **2-4 Organization of the Fire Brigade.**

**2-4.1** Fire brigade management shall be responsible for:

(a) Establishing programs to accomplish the items identified in the fire brigade organizational statement.

(b) Establishing the size and organization of the fire brigade.

(c) Coordinating and scheduling necessary meetings.

(d) Establishing and maintaining fire protection equipment inspection programs for fire brigade equipment.

(e) Coordinating the maintenance and review of necessary reports and records.

(f) Maintaining liaison with local fire authorities.

(g) Making information on hazardous materials and processes to which the brigade may be exposed available to brigade members.

**2-4.2 Fire Brigade Leader.** The fire brigade leader shall:

(a) Establish a chain of command within the brigade to act in the absence of the brigade leader.

(b) Assist in the selection process of brigade members.

(c) Establish and maintain a brigade roster.

(d) Select assistant fire brigade leaders as appropriate to the size of the brigade and keep them informed of all operations of the brigade.

(e) Develop pre-emergency plans for site-specific hazards and make information on hazardous materials and processes to which the fire brigade may be exposed available to all fire brigade members.

(f) Select and maintain equipment used by the brigade.

(g) Issue written reports on the status of the fire brigade to management, at least annually.

(h) Assist in fire investigations.

**2-4.3 Assistant Fire Brigade Leaders.** The assistant fire brigade leader shall complete all tasks assigned by the fire brigade leader and substitute in his or her absence.

#### **2-4.4 Fire Brigade Members.**

**2-4.4.1** Members of the fire brigade shall be selected from employees at the facility. They shall meet the requirements established for fire brigade members and shall represent as many separate areas and departments of the facility as is practical.

**2-4.4.2** Each fire brigade member shall cooperate, participate, and comply with the provisions of the fire brigade organizational statement and the training and education program.

#### **2-4.5\* Fire Brigade Membership Requirements.**

**2-4.5.1\* Medical Requirements.** Prior to being accepted for fire brigade membership, employees shall be examined and certified by a qualified physician as being medically and physically fit. The medical and physical fitness requirements shall take into account the risks and the tasks associated with the individual's assigned fire brigade duties.

**2-4.5.2** Fire brigade members shall be encouraged to maintain good medical and physical condition and shall be required to report to management any changes in their medical or physical condition that could impact their performance as a fire brigade member.

**2-4.6 Identification.** Members of the brigade shall be issued identification for the purpose of:

- (a) Assistance in reaching the incident in an emergency.
- (b) Identification by security personnel.
- (c) Establishing authority.

#### **2-4.7 Fire Brigade Communications.**

(a) A means shall be established to notify brigade members of a reported incident.

(b) A means shall be established for communications between brigade members during an emergency.

#### **2-5 Fire Equipment Inspection and Maintenance.**

**2-5.1** Management shall establish a program for the inspection and maintenance of both fixed and portable plant fire equipment as follows:

- (a) Establish the schedule for routine inspection and maintenance.
- (b) Ensure that equipment is maintained and inspected in accordance with the manufacturer's recommendations.
- (c) Assign inspection and maintenance duties to specific personnel.
- (d) Ensure that the required reports and records are properly completed and maintained.

**2-6 Fire Brigade Equipment.** The fire brigade shall be provided with the appropriate equipment to enable it to perform the duties assigned in the organizational statement.

**2-6.1\*** The equipment selected shall be based on the nature of the facility and the site-specific hazards present.

**2-6.2** Storage space for the fire brigade equipment shall be provided so that fire fighting equipment is readily accessible.

**2-6.3** A list shall be maintained of the equipment on the site that the fire brigade is expected to use. The list shall include the location of the equipment and procedures for obtaining the equipment when needed. This list shall be updated at least annually.

**2-6.4** Operation and maintenance manuals for fire brigade equipment shall be available to the fire brigade.

**2-6.5** Maintenance reports of fire brigade equipment shall be available to the fire brigade.

#### **2-7 Fire Brigade Apparatus.**

**2-7.1** Fire brigade management shall consider fire brigade health and safety as primary concerns in the specification, design, construction, acquisition, operation, maintenance, inspection, and repair of all apparatus.

**2-7.1.1** Fire brigade apparatus shall be operated only by members who have been qualified in its proper operation by formal training using performance-based standards.

**2-7.1.2** Drivers of fire brigade apparatus shall have valid driver's licenses for the type of vehicle as required by state law or corporate policy. Vehicles shall be operated in compliance with all applicable traffic laws.

**2-7.1.3** Drivers of fire brigade apparatus shall be directly responsible for safe and prudent operation under all conditions.

**2-7.1.4** Standing while riding shall be prohibited.

**2-7.1.5** Riding on tailsteps or in any other exposed position on fire brigade apparatus shall be prohibited.

**2-7.1.6** All persons riding on fire brigade apparatus shall be seated and secured with seat belts.

**2-7.2** All fire brigade apparatus shall be maintained in accordance with the manufacturer's recommendations.

**2-7.3** All fire brigade apparatus shall be inspected at least weekly and within 24 hr after any use or repair to identify and correct unsafe conditions.

**2-7.4** Fire brigade apparatus found unsafe shall be placed out of service until repaired.

**2-7.5** Fire pumps on apparatus shall be service tested in accordance with the frequency and procedures specified in NFPA 1911, *Standard for Service Tests of Pumps on Fire Department Pumping Apparatus*.

**2-7.6** All aerial devices shall be inspected and service tested in accordance with the frequency and procedures specified in NFPA 1914, *Standard for Fire Department Aerial Devices*.

### **Chapter 3 Fire Brigades That Perform Incipient Stage Fire Fighting**

**3-1 General.** Fire brigades organized to perform incipient stage fire fighting shall meet the following requirements in addition to all applicable requirements of Chapters 1 and 2 of this standard.

### 3-2 Training.

**3-2.1** All fire brigade members shall receive training and education at least annually.

NOTE: Training and education objectives can be accomplished in the same session.

**3-2.2** All fire brigade members shall participate in a drill at least annually.

**3-2.3\*** Training and drills involving live fire evolutions shall be performed in accordance with recognized safety precautions.

**3-3 Protective Clothing and Equipment.** Protective clothing for structural fire fighting and self-contained breathing apparatus shall not be required.

## Chapter 4 Fire Brigades That Perform Advanced Exterior Fire Fighting Only

**4-1 General.** Fire brigades organized to perform advanced exterior fire fighting only shall meet the following requirements in addition to all applicable requirements of Chapters 1 and 2 of this standard.

### 4-2 Training and Education.

**4-2.1** All fire brigade members shall receive training and education at least quarterly to meet the requirements of Section 2-3.

**4-2.2** All fire brigade members shall participate in a drill at least semi-annually to meet the requirements of Section 2-3.

**4-2.3** Live fire training shall be conducted at least annually. Training and drills involving a live fire evolution shall be performed in accordance with recognized safety precautions.

**4-2.4** Live fire training shall include simulated props that are representative of the hazards that may be encountered by the fire brigade member.

### 4-3 Protective Clothing and Protective Equipment.

**4-3.1** Protective clothing and protective equipment shall be available in sufficient quantity and sizes to fit each brigade member expected to enter the fire control zone. Protective clothing and protective equipment shall be required to be worn by all fire brigade members entering the fire control zone.

(a) Protective clothing shall be in accordance with NFPA 1971, *Standard on Protective Clothing for Structural Fire Fighting*.

(b) Helmets shall be in accordance with NFPA 1972, *Standard on Helmets for Structural Fire Fighting*.

(c) Gloves shall be in accordance with NFPA 1973, *Standard on Gloves for Structural Fire Fighting*.

(d) Footwear shall be in accordance with NFPA 1974, *Standard on Protective Footwear for Structural Fire Fighting*.

**4-3.2** SCBA and PASS devices meeting the following requirements shall be provided for and be used by all fire brigade members working in the fire control zone when the atmosphere is hazardous, or the atmosphere is suspected of being hazardous, or the atmosphere could rapidly become hazardous.

(a) PASS devices shall be in accordance with NFPA 1982, *Standard on Personal Alert Safety Systems (PASS) for Fire Fighters*.

(b) Open-circuit type, self-contained breathing devices shall be in accordance with NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire Fighters*.

(c) Closed-circuit type, self-contained breathing devices shall be NIOSH/MSHA approved with a minimum service duration of 30 min and shall operate in the positive pressure mode only.

**4-3.3** Protective clothing and protective equipment shall be used and maintained in accordance with manufacturer's instructions. A maintenance and inspection program shall be established for protective clothing and protective equipment. Specific responsibilities shall be assigned for inspection and maintenance.

**4-3.4** Members using SCBA shall operate in teams of two or more who are in communication with each other through visual, audible, physical, safety guide-rope, electronic, or other means to coordinate their activities, and are in close proximity to each other to provide assistance in case of an emergency.

When members are involved in operations that require the use of SCBA or other respiratory protective equipment, at least one member shall be assigned to remain outside the area where respiratory protection is required. This member shall be responsible for maintaining a constant awareness of the number and identity of personnel using SCBA, their location, function, and time of entry. Members with SCBA shall be available for rescue.

**4-3.5** All fire brigade members entering the fire control zone shall be provided with approved protective hoods or a combination of ear flaps and collar that provides protection for the ears and neck and interfaces with the self-contained breathing apparatus facepiece, protective coat, and helmet.

**4-4\* Medical.** Each fire brigade member shall be examined and certified annually by a qualified physician as being medically and physically fit. (*See 2-4.5.1.*)

## Chapter 5 Fire Brigades That Perform Interior Structural Fire Fighting Only

**5-1 General.** Fire brigades organized to perform interior structural fire fighting only shall meet the following requirements in addition to all applicable requirements of Chapters 1 and 2 of this standard.



## 5-2 Training.

**5-2.1** All fire brigade members shall receive training and education at least quarterly to meet the requirements of Section 2-3.

**5-2.2** All fire brigade members shall participate in a drill at least semiannually to meet the requirements of Section 2-3.

**5-2.3** Live fire training shall be conducted at least annually. Training and drills involving a live fire evolution shall be performed in accordance with NFPA 1403, *Standard on Live Fire Training Evolutions in Structures*.

**5-2.4** Live fire training shall include simulated props that are representative of the hazards that may be encountered by the fire brigade member.

## 5-3 Protective Clothing and Protective Equipment.

**5-3.1** Protective clothing and protective equipment shall be available in sufficient quantity and sizes to fit each brigade member expected to enter the fire control zone. The protective clothing and protective equipment listed below shall be required to be worn by all fire brigade members entering the fire control zone.

(a) Protective clothing shall be in accordance with NFPA 1971, *Standard on Protective Clothing for Structural Fire Fighting*, and

(b) Helmets shall be in accordance with NFPA 1972, *Standard on Helmets for Structural Fire Fighting*, and

(c) Gloves shall be in accordance with NFPA 1973, *Standard on Gloves for Structural Fire Fighting*, and

(d) Footwear shall be in accordance with NFPA 1974, *Standard on Protective Footwear for Structural Fire Fighting*, and

(e) PASS devices shall be in accordance with NFPA 1982, *Standard on Personal Alert Safety Systems (PASS) for Fire Fighters*, and

(f) Open-circuit type, self-contained breathing devices shall be in accordance with NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire Fighters*, or

(g) Closed-circuit type, self-contained breathing devices shall be NIOSH/MSHA approved with a minimum service duration of 30 min and shall operate in the positive pressure mode only.

**5-3.2** All fire brigade members entering the fire control zone shall be provided with approved protective hoods or a combination of ear flaps and collar that provides protection for the ears and neck and interfaces with the self-contained breathing apparatus facepiece, protective coat, and helmet.

**5-3.3** Protective clothing and protective equipment shall be used and maintained in accordance with manufacturer's instructions. A maintenance and inspection program shall be established for protective clothing and protective equipment. Specific responsibilities shall be assigned for inspection and maintenance.

**5-3.4** Fire brigade members performing emergency operations below ground level shall be provided with self-contained or externally supplied breathing apparatus and shall use that apparatus unless the safety of the atmosphere can be established by testing and continuous monitoring.

**5-3.5** Members using SCBA shall operate in teams of two or more who are in communication with each other through visual, audible, physical, safety guide-rope, electronic, or other means to coordinate their activities, and are in close proximity to each other to provide assistance in case of an emergency.

When members are involved in operations that require the use of SCBA or other respiratory protective equipment, at least one member shall be assigned to remain outside the area where respiratory protection is required. This member shall be responsible for maintaining a constant awareness of the number and identity of personnel using SCBA, their location, function, and time of entry. Members with SCBA shall be available for rescue.

**5-4 Medical.** Each fire brigade member shall be examined and certified annually by a qualified physician as being medically and physically fit. (See 2-4.5.1 and A-4-4.)

## Chapter 6 Fire Brigades That Perform Both Advanced Exterior and Interior Structural Fire Fighting

**6-1 General.** Fire brigades intended to perform both advanced exterior and interior structural fire fighting duties shall meet the requirements of Chapters 1, 2, 4, and 5 of this standard.

## Chapter 7 Referenced Publications

**7-1** The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

**7-1.1 NFPA Publications.** National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 1403, *Standard on Live Fire Training Evolutions in Structures*, 1992 edition

NFPA 1911, *Standard for Service Tests of Pumps on Fire Department Pumping Apparatus*, 1991 edition

NFPA 1914, *Standard for Testing Fire Department Aerial Devices*, 1991 edition

NFPA 1971, *Standard on Protective Clothing for Structural Fire Fighting*, 1991 edition

NFPA 1972, *Standard on Helmets for Structural Fire Fighting*, 1987 edition

NFPA 1973, *Standard on Gloves for Structural Fire Fighting*, 1988 edition

NFPA 1974, *Standard on Protective Footwear for Structural Fire Fighting*, 1987 edition

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire Fighters*, 1987 edition

NFPA 1982, *Standard on Personal Alert Safety Systems (PASS) for Fire Fighters*, 1988 edition

## Appendix A

*This Appendix is not a part of the requirements of this NFPA document, but is included for information purposes only.*

**A-1-1.2** For additional information on fire brigade organization, see Chapter 4 in the NFPA *Industrial Fire Hazards Handbook*. The following decision tree is taken from the chapter.

**A-1-4** It is the potential exposure and training that separate an organized fire brigade from designated employees (as defined by OSHA) who have some fire response duties in the general work area. The scope of brigade actions and responsibilities are based on the specific duties that the fire brigade members are expected to perform. If a brigade member is not expected to perform a particular fire fighting function, then management has no obligation to train or equip the fire brigade member to perform that function.

**A-1-4.2** Designated employees who are intended to respond to incipient fires in their immediate work area must receive training commensurate with the duties they are expected to perform. Their responsibilities are normally limited to sounding an alarm, taking immediate action to extinguish the fire, and evacuation of the area.

**A-1-5 Industrial Fire Department.** The vast majority of industrial fire brigades are not industrial fire departments. Industrial fire departments are those few brigades that resemble and function as municipal fire departments. These are generally found only at large industrial facilities and at industrial facilities that also perform municipal fire fighting, usually where the plant is located far from municipalities with organized fire departments. Industrial fire departments are organized and equipped for interior structural fire fighting similar to that used by municipal fire departments.

Industrial fire brigades that provide rescue services are industrial fire departments. Industrial facilities may have separate organizations covered by separate organizational statements, operating as industrial fire brigades and rescue teams providing rescue not related to fire incidents. Membership in these two organizations may overlap.

**A-1-5 Interior Structural Fire Fighting.** This definition is taken from OSHA, 29 CFR 1910.

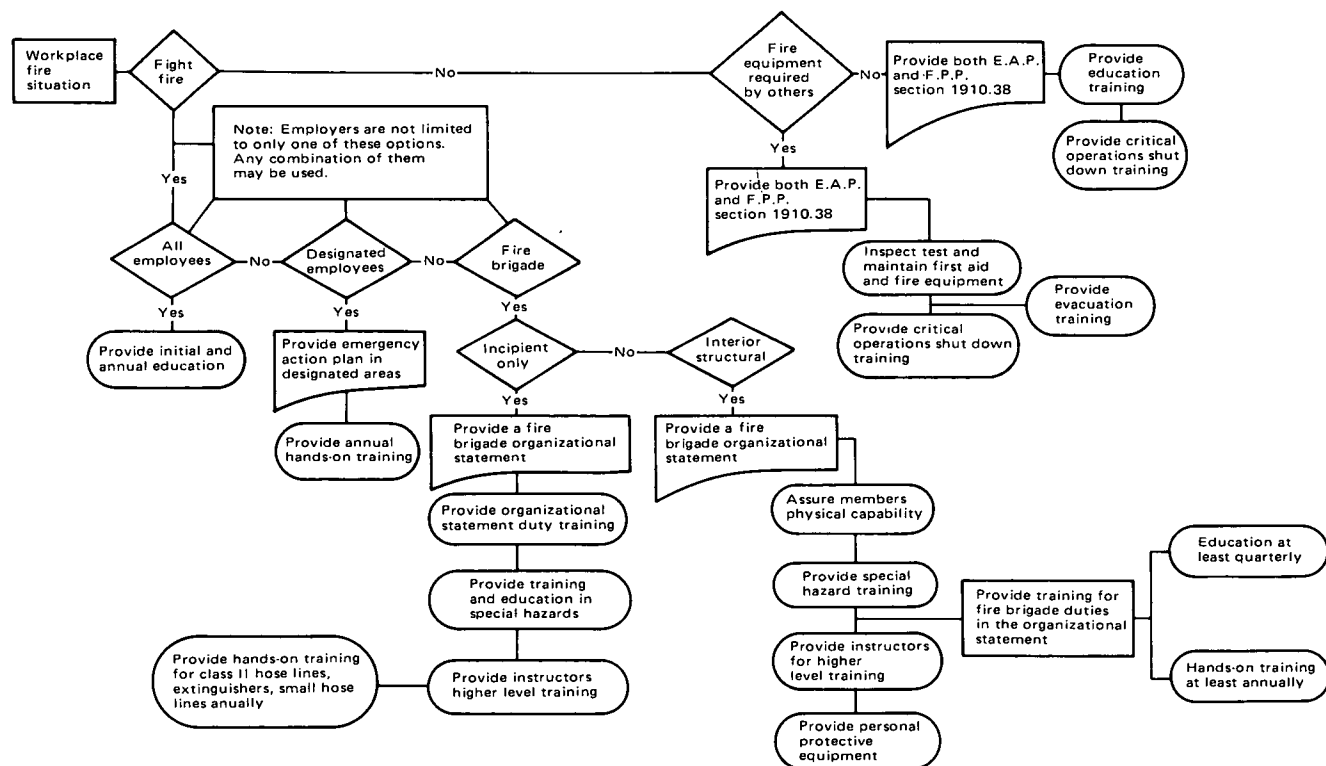


Figure A-1.1.2 Decision tree.

**A-2-1.1** In order to maintain the safety and operational effectiveness of the fire brigade, it should be recognized that even during times of economic stress it is necessary to provide adequate funds for proper equipment and training.

The structure of the brigade should be determined based on an analysis of all factors present in the areas where the brigade will operate, including, but not limited to:

- (a) Property size
- (b) Property accessibility
- (c) Building size and construction
- (d) Building contents
- (e) Fire protection equipment
- (f) Fire hazards
- (g) Personnel safety
- (h) Public fire department assistance
- (i) Availability of personnel
- (j) Shift and vacation schedule of the facility
- (k) Other duties of the brigade (fire watch, maintenance of fire fighting equipment, etc.).

#### **A-2-1.2.1 Sample Fire Brigade Organizational Statements**

### **ABC Fire Brigade Organizational Statement**

**January 1990**

**Purpose:** The ABC Fire Brigade was organized to safeguard the employees and the property of the ABC Corporation from the threat of fire. The fire brigade is intended to function as an incipient stage fire brigade as identified by CFR 29, Part 1910, Subpart L of the Occupational Safety and Health Administration.

**Membership:** Anyone who works at the ABC Corporation is welcome to join the fire brigade, although certain specific members are appointed, based on their particular job and location within the facility. At the present time, there are a total of 25 members on the brigade.

Members are identified as fire fighting members and support members. Fire fighting members are expected to perform fire fighting duties, utilizing both hand portable fire extinguishers and wheeled fire extinguishers and the 1½-in. (38-mm) hose lines stationed throughout the facility.

Support members are not expected to fight fires but are expected to perform specialized duties that are intended to support the fire fighting operations. These support functions include:

- (a) Ensure that the building is evacuated.
- (b) Ensure that sprinkler valves are open.

(c) Ensure that the fire department is directed to the scene of the fire.

(d) Ensure that the fire pump is operating properly.

(e) Ensure that other logistical needs of the fire fighting members are met.

**Organization:** The brigade is headed by a brigade chief. A shift fire brigade leader is also assigned to each shift. In the absence of the chief, the shift chief is in charge of the brigade. During a fire incident, the shift chief or brigade chief is in charge of the incident until the Washington Volunteer Fire Department arrives. At this time, the officer in charge of the fire department forces on scene and the shift chief will establish a joint incident command.

**Functions:** The primary function of the fire brigade is to perform fire fighting operations that do not exceed the capabilities of the members present to prevent fires that begin from extending prior to the arrival of the fire department or operation of the sprinkler system.

Additional functions include the provision of advanced first aid assistance in any salvage operations that are necessary during any type of incident, including a fire, and the checking of fire protection and life safety equipment throughout the facility on a daily basis.

**Training:** The primary source of training for fire fighting members is that conducted within the facility by the fire brigade training officer. This training is conducted on a monthly basis, with training being done in accordance with the ISFSI *Performance Standards for Incipient Stage Fire Brigade Member II*.

Support members receive training on a bimonthly basis in the operation of the fire protection equipment, building evacuation information, and other related topics. This training is provided by the fire brigade training officer and other personnel from the facility, such as the maintenance supervisor, the emergency coordinator, and the safety director.

**Safety:** While this fire brigade exists to help safeguard the people and property of the ABC Corporation, the first and foremost consideration must be for the safety of the members of the fire brigade. The brigade has limited resources and training and thus has limited abilities. These limits must be recognized by all members to ensure that members are not extended beyond their capabilities or the limitations imposed by the equipment with which they must operate.

### **Sample Organizational Statement**

ABC Company, under contract with the XYZ Corporation for management and operation of the XYZ Plant, will use an Emergency Response Team (ERT) for the protection of those facilities.

The ERT is composed of employees whose normal job duties are not that of an ERT. In the event of an emergency, ERT members will leave their normal assigned duties and assume the duties of the ERT. Responding ERT members will be grouped into teams, and designated ERT leaders (ERTLs) using the Incident Management System will direct and supervise emergency operations. The total number of available ERT members responding to an emergency will vary from two to forty depending on the particular site, the time of day, and response times. As dictated by the size and duration of the emergency, this number could increase to over one hundred with response by trained ERT members and leaders from other XYZ Plant sites.

For fires involving enclosed structures, the ERT will perform only incipient fire fighting and will not enter into a building or enclosed structure involved with fire beyond the incipient stage. For a building involved with fire beyond the incipient stage, ERT members will notify local municipal fire departments or mutual aid organizations to respond and will assist with evacuation, account for personnel, perform first aid, and protect adjacent exposures.

For emergency fire response to the site-specific hazards associated with the storage and transfer of crude oil, the ERT will perform advanced exterior fire fighting. In performing advanced exterior fire fighting, ERT members will wear protective gear and will have responsibilities for rescue, emergency first aid, isolation of fuel sources, and application of water, foam, and dry chemical from the perimeter of the fire, which does not require entry into the interior of enclosed structures involved with fire beyond the incipient stage. Emergency contractors will be employed as necessary for complex fire emergencies that are beyond the training of the ERT.

For response to site-specific hazardous materials emergencies, the ERT will perform limited functions. In performing the limited hazardous materials functions, ERT members will be provided with appropriate personal protective equipment and will approach the source of a spill or leak and attempt to contain, control, and terminate the emergency conditions for which they have been trained. Emergency contractors will be employed as necessary for complex spills, leaks, and cleanup that are beyond that for which the ERT are trained.

Each ERT member will receive training and education commensurate with the duties and functions they are expected to perform. Forty hours of fire, safety, and hazardous materials response training will be provided annually at the ERT Training Academy using established performance-based standards. Training at the academy will include, but not be limited to, hose and nozzle handling, fire fighter safety, use of protective gear, strategies and tactics, first aid, CPR, hazard identification, spill control, and live fire fighting involving flammable liquids and gases. ERT members must attend and successfully complete one ERT Training Academy before participating in emergency operations.

ERT members will receive additional fire training quarterly. Training will be provided at each of the National Oil Supply facilities by qualified personnel to meet established

performance standards. Such training will include classroom instruction and hands-on training that has been selected to keep ERT members familiar with site-specific equipment, systems, and standard operating procedures.

Designated ERTLs will annually receive eight hours of specialized classroom instruction and will train and function as a leader in all live fire and hazardous materials training exercises at the ERT Training Academy and at the sites. Such training will be over and above that provided to other members and will be provided by qualified personnel. Instruction will include, but not be limited to, such subjects as leadership, methods of teaching, incident command, communications, tactics and strategies, and standard operating procedures.

**A-2-1.2.2** The purpose of the fire brigade organizational statement is to demonstrate management's commitment to the establishment of a fire brigade. This statement identifies all of the information pertinent to the fire brigade and is intended to provide the fire brigade member with a clear picture of the organization of the brigade and the duties that he or she is expected to perform as they relate to the fire brigade.

In addition to the information required in the organizational statement, the following information should also be included:

- (a) the line of authority of each fire brigade member
- (b) the number of fire brigade leaders
- (c) the number of fire brigade instructors
- (d) a list and description of the types of awards or recognition that brigade members may be eligible to receive.

The fire brigade organizational statement is intended to represent the foundation of the fire brigade. It is much like the mission statement of the organization. Thus, everything that the brigade does should be in accordance with the information in the organizational statement. As such, the organizational statement may need periodic revision as the mission, organization, or duties of the brigade change.

**A-2-1.4** Example of a safety policy statement: It is corporate/local company policy to operate an industrial fire brigade and to provide all fire brigade members with the highest possible levels of safety and health while performing their assigned fire brigade duties.

**A-2-1.4.2** The determination of whether the individual will have a full-time or part-time assignment should be made by the management. This should depend on the size and structure of the fire brigade; the activity level; the level of risk in the fire brigade's work environment; and the history of accidents, injuries, occupational illness, deaths, and exposures.

**A-2-1.5** Medical records shall be permitted to be stored elsewhere in accordance with company policies.

**A-2.2.1.4** Fire brigades are often organized in such a manner that they respond to the emergency scene and assemble upon arrival. A system must be established to

identify each fire brigade member arriving at the emergency scene and to organize them into groups with appropriate supervision. This requires a standard system of "reporting in" at the incident and becoming a part of the organized system of operation.

**A-2-2.1.5** For information on performance standards for fire brigade members see *Performance Standards for Industrial Fire and Emergency Management Training*, ISFSI.

**A-2-2.2.2** Site-specific special hazards should be identified and itemized for the fire brigade, along with a detailed explanation of the hazard. Special hazards may involve operations or materials. Typical operations are data processing and electronic control equipment where the discharge of a special extinguishing agent may present a hazard to fire brigade members, engine test areas, paint dip, mix and storage rooms, spray booths, flammable liquid tank farms, oil quenching and machinery operations, energized electrical equipment, hazardous materials, and combustible dusts.

**A-2-3.6** The fire brigade training coordinator should be an employee who is recognized or certified as a fire brigade or fire service instructor by a government authority or national certification organization, or the coordinator should demonstrate the competency to meet the requirements of management in its role as an authority having jurisdiction.

For information on performance standards for fire brigade instructors see *Performance Standards for Industrial Fire and Emergency Management Training*, ISFSI or NFPA 1041, *Standard for Fire Service Instructor Professional Qualifications* or equivalent.

Where fire brigade training is contracted and provided by individuals or agencies outside of the company organization, the designated fire training coordinator should verify and ensure that instructors providing the training are knowledgeable in the subjects being presented. Such training should be accomplished using prepared lesson plans and performance-based standards that have been approved by the fire brigade training coordinator.

Employees and members of the fire brigade who have been trained in the methods of teaching and are recognized by the fire training coordinator as knowledgeable in the subject being presented may provide instruction to the fire brigade with the use of prepared lessons plans and performance-based standards that have been approved by the fire training coordinator.

The fire brigade training coordinator should oversee the fire brigade training and education program to ensure quality and consistency of the training provided.

**A-2-3.7** For information on performance standards for fire brigade leadership, see *Performance Standards for Industrial Fire and Emergency Management Training—Fire Brigade Leader*, ISFSI.

**A-2-3.8** Management should designate the person(s) responsible for planning and scheduling drills based on realistic scenarios for credible site-specific emergencies.

Where mutual aid or other outside agencies play an important role in the emergency response procedures of the site, drills and pre-emergency planning should be conducted in conjunction with these agencies.

Management should designate the person(s) responsible for observing drills and for critiquing fire brigade or outside agency performance. Lessons learned should be incorporated into the training and education program to improve any performance that is below established standards.

While there are recognizable training benefits achieved through drills exercising the knowledge and skills of the fire brigade, drills should not be considered as training (*see definition of a drill*). For example, if fire brigade members were never trained in the operation of a piece of fire brigade apparatus or in the proper strategies and tactics for emergency fire operations, then the fire brigade member could not demonstrate competence in performing these tasks in a drill. Drills can be valuable in determining the frequency of refresher training necessary to maintain fire brigade skills.

Responses to actual emergencies may reduce the necessity to conduct drills, providing the actual responses occur with sufficient frequency and as long as the fire brigade performance during these responses is evaluated in accordance with established performance objectives and properly documented.

**A-2-3.9** Since members will be required to meet the provisions of this standard that apply to the type of fire brigade of which they are members, it is important that the applicable provisions of this standard be reviewed in the training program.

**A-2-3.10** When organizing the industrial fire brigade, management must take into consideration the need for specialized duties required in the event of a fire or related emergency and assign members to the brigade to ensure that these duties are accomplished.

Members assigned to the fire brigade to perform specific duties include those people who have specific technical knowledge or skills or who have been given specific assignments that indirectly support manual fire suppression efforts.

In most cases, these members are not expected to perform manual fire suppression activities in the event of an emergency but are expected to perform only those specialized tasks for which they have been chosen.

Some of these specialized assignments include:

(a) *Building evacuation.* These members are expected to perform specialized duties to ensure that personnel are safely evacuated from an enclosed structure or the facility in the event of fire. They may be known as fire brigade wardens or a variety of other titles.

(b) *Sprinkler system control.* These members are assigned to perform specialized duties to ensure that control of the automatic sprinkler protection system within the fire area

or the facility is maintained by facility personnel in the event of fire. They may be known as fire brigade sprinkler valve operators or a variety of other titles.

(c) *Electrical power control.* These members are expected to perform specialized duties to ensure that control of electrical power within the fire area or the facility is maintained by facility personnel in the event of fire. They may be known as fire brigade electricians or a variety of other titles.

(d) *Utility control.* These members are expected to perform specialized duties to ensure that control of plant utilities (steam, water, natural gas, and other liquid or vapor piping systems) within the fire area or the facility is maintained by facility personnel in the event of fire. They may be known as fire brigade utility control technicians or a variety of other titles.

(e) *Fire pump operation.* These members are expected to perform specialized duties to ensure that stationary fire pumps are placed into operation or are operating properly in the event of fire. They may be known as fire brigade fire pump operators or a variety of other titles.

(f) *Salvage.* These members are expected to perform specialized duties to ensure that actions are taken during and after manual fire suppression activities to minimize the resultant damage from the fire. They may be known as fire brigade salvage personnel or a variety of other titles.

(g) *Traffic control.* These members are expected to perform specialized duties to ensure that control of foot and vehicular traffic in and around the fire area or the facility is maintained in the event of fire and to ensure that any responding agency is directed to the fire area. These operations may be accomplished by facility security personnel who have been assigned to the fire brigade.

**A-2-3.12** Members of the industrial fire brigade should be afforded opportunities to improve their skills and knowledge of fire prevention and fire fighting through attendance at outside meetings and special training classes. Members who belong to volunteer fire departments and who receive certified training from a qualified instructor as a part of their public fire department activities may have this training documented in their individual fire brigade training records.

**A-2-4.5** Members who have not met the specific qualifications should not perform the assigned duties in actual emergency incidents. These members might, however, be utilized under structured supervision to perform duties for which they have been trained.

**A-2-4.5.1** Some medical or physical limitations may not necessarily eliminate an individual from performing limited duties as a fire brigade member. For example, even though an individual may have a back condition that would prohibit heavy lifting and pulling, this condition would not necessarily prevent the individual from serving as a fire brigade leader, providing direction and supervision to other fire brigade members.

**A-2-6.1** In selecting the equipment necessary to allow the fire brigade members to perform their duties as specified in the fire brigade organizational statement, it should be

recognized that such a selection may be drawn from a wide range of equipment. Among the equipment more commonly selected is the following:

(a) Portable fire extinguishers. Portable fire extinguishers should be in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*.

(b) Hose and hose accessories. Fire hose should be in accordance with NFPA 1961, *Standard for Fire Hose*. Hose should be maintained in accordance with NFPA 1962, *Standard for the Care, Use, and Maintenance of Fire Hose Including Couplings and Nozzles*.

(c) Portable lighting equipment. Portable lighting equipment, including portable electric generators, extension cords, electrical adapters, hand-held lights, and spare batteries.

(d) Forcible entry tools. Forcible entry tools, including axes, saws, power tools, plaster hooks, pike poles, claw tools, door openers, crowbars, sledgehammers, wire and bolt cutters, and battering rams.

(e) Ladders.

(f) Salvage and overhaul equipment.

(g) Rescue and first aid equipment.

(h) Special purpose equipment, such as portable foam-making equipment.

(i) Personnel protective equipment.

### **A-3-2.3 Fire Field Safety Recommendations.**

#### **1. Site Selection Preparation:**

Select an open area with a safe clearance from important buildings, dry vegetation, and storage containers holding flammable liquids and gases and compressed gases.

#### **2. Safety Procedures:**

(a) Smoking should be permitted only in designated areas.

(b) Fuel and ignition sources should be separated by safe distances.

(c) If high winds or other adverse weather conditions present a hazard to members or adjacent property, live fire training should not be conducted.

(d) Only appropriate ignition sources should be used.

(e) Each student should utilize a fully charged extinguisher when participating in an evolution.

(f) Fire attack should be from the upwind side.

(g) Care should be taken to ensure that members are not placed at risk to the products of combustion.

(h) For Class B fires, at least two portable extinguishers of the appropriate size and rating should be available for each evolution.

(i) Retreat from an extinguished fire should be done in an organized manner, always being alert for possible reflash or rekindle.

### 3. Fire Training Evolutions:

(a) Evolutions should be commensurate with the sizes of fires that the members are expected to extinguish in their normal duties.

### 4. Student Clothing:

Individuals participating in field evolutions should be attired in the type of clothing they would normally wear during the performance of their day-to-day job function.

### 5. Instructors:

(a) An instructor should guide each student while approaching, extinguishing, and retreating from each live fire training evolution.

(b) The instructor should provide for the proper supervision of members who are not participating in the current evolution.

### 6. Fuels:

(a) Flammable liquids should not be used as accelerants to ignite Class A training fires.

(b) Only approved safety containers should be used to dispense combustible liquids used as accelerants.

(c) The person fueling and lighting the fire should be properly instructed and should wear appropriate protective clothing.

(d) A qualified person equipped with a charged hand-line or appropriate extinguisher should stand by in any case where a combustible liquid is being used to light a training fire.

**A-4-4** Minimum physical requirements for brigade membership should be established by each facility. A medical examination should be conducted prior to an appointment to the brigade and annually thereafter. The medical examination should be based on the tasks associated with the fire brigade's activities.

The annual medical examination for all members who engage in emergency operations is intended to establish their fitness for the physical requirements of their assignments and to regularly monitor their medical and physical conditions to identify potential problems. This examination should include the basic areas addressed in a routine checkup and should specifically include the following items:

1. Pulmonary function testing;
2. Chest X-ray, if indicated;
3. Cardiac evaluation and testing, if indicated;
4. Blood and urine testing;
5. Vision testing;
6. Audiometric testing.

The medical examination should be developed and administered by the corporate/local company qualified physician in recognition of the specific requirements of the members' duties.

## Appendix B Referenced Publications

**B-1** The following documents or portions thereof are referenced within this standard for informational purposes only and thus are not considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

**B-1.1 NFPA Publications.** National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 10, *Standard for Portable Fire Extinguishers*, 1990 edition

NFPA 1041, *Standard for Fire Service Instructor Professional Qualifications*, 1987 edition

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, 1987 edition

NFPA 1561, *Standard on Fire Department Incident Management System*, 1990 edition

NFPA 1961, *Standard for Fire Hose*, 1992 edition

NFPA 1962, *Standard for the Care, Use, and Maintenance of Fire Hose Including Couplings and Nozzles*, 1988 edition

NFPA *Industrial Fire Hazards Handbook*, Third edition

### B-1.2 Other Publications.

**B-1.2.1 Federal Regulations.** U.S. Government Printing Office, Washington, DC.

*Code of Federal Regulations*, Title 29, Chapter XVII, Part 1910

**B-1.2.2 ISFSI Publications.** International Society of Fire Service Instructors, 30 Main St., Ashland, MA 01721.

*Performance Standards for Industrial Fire and Emergency Management Training*

*Performance Standards for Industrial Fire and Emergency Management Training — Fire Brigade Leader*

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