NFPA 1720

Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments

2004 Edition

NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

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2004 Edition

This edition of NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*, was prepared by the Technical Committee on Fire and Emergency Service Organization and Deployment — Volunteer and acted on by NFPA at its May Association Technical Meeting held May 23–26, 2004, in Salt Lake City, UT. It was issued by the Standards Council on July 16, 2004, with an effective date of August 5, 2004, and supersedes all previous editions.

This edition of NFPA 1720 was approved as an American National Standard on August 5, 2004.

Origin and Development of NFPA 1720

In 2001, the first edition of NFPA 1720 was issued. The development of that benchmark standard was the result of a considerable amount of hard work and tenacity by the Technical Committee members and the organizations they represented. That standard was the first organized approach to defining levels of service, deployment capabilities, and staffing levels for substantially volunteer fire departments. Research work and empirical studies in North America were used by the Committee as a basis for developing response times and resource capabilities for those services, as identified by the fire department.

Following the issuance of the first edition, the NFPA Standards Council asked the Technical Committee to begin the revision process for NFPA 1720 so that a revised standard would be considered at the May 2004 NFPA membership meeting in Salt Lake City, Utah. The Committee met in the fall of 2001 and began the process of reviewing and revising the first edition of NFPA 1720. The Committee formed several Task Groups to look at various aspects of the document. The Committee met and reviewed the work of the Task Groups and the public proposals that had been received, and in the summer of 2003, the Committee's Report on Proposals was released for public review and comment. Based on the Committee's consideration and review of the public input received, this edition of the standard was developed.

The work done by the Committee provides the user with a template for developing an implementation plan on the standard. Most important, it provides the body politic and the citizens a true picture of the risks in their community and the fire department's capabilities to respond to and manage those risks.

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Technical Committee on Fire and Emergency Service Organization and Deployment — Volunteer

Peter A. McMahon, *Chair*
Town of Grand Island, NY [C]

Alden H. (Andy) Andersen, Deer Park, MD [C]
Robert T. Bettenhausen, Tinley Park Volunteer Fire Department, IL [E]
Rep. International Association of Fire Chiefs
Larry W. Curl, Wayne Township Fire Department, IN [E]
Rep. International Association of Fire Chiefs
Ronald R. Farr, Kalamazoo Township Fire Department, MI [L]
Rep. National Association of Town and Township
James G. Hannigan, New York State Association of Fire Chiefs, NY [E]
Rep. New York State Association of Fire Chiefs
Robert J. Kilpeck, Brandon Fire Department, VT [U]
Rep. National Volunteer Fire Council
Richard C. Maddox, Sayvill, NY [U]
Rep. Fire Department Safety Officers Association
John J. McAuliffe, Wethersfield, CT [U]
Rep. National Volunteer Fire Council
Kenneth H. McMahon, MOTIVA LLC, DE [L]
Rep. Delaware Volunteer Firemen's Association
Vernon J. Patton, First Energy Corporation, OH [C]
Timothy N. Pelton, Holdsworth Pelton and Associates, Inc., CT [L]
Greg L. Render, Signal Hill Fire Protection District, IL [E]
Rep. International Association of Fire Chiefs
Richard Trexler, Colfax, NC [I]
Rep. Volunteer Firemen's Insurance Services, Inc.

Alternates

Jay Howell, CODE 3 Insurance Services, NC [I]
(Alt. to R. Trexler)
T. J. Nedrow, Lacey Fire District 3, WA [U]
(Alt. to J. J. McAuliffe)
Jeremiah O'Sullivan, Association of Fire Districts-New York State, NY [E]
(Alt. to J. G. Hannigan)
Thomas R. Pressler, Bloomington, MN [U]
[Voting Alt. to NVFC (National) Rep.]
Paul M. Wilcox, Almont Fire Department, MI [U]
(Alt. to R. J. Kilpeck)

Gary O. Tokle, NFPA Staff Liaison

This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

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.

Committee Scope: This Committee shall have primary responsibility for documents on the organization, operation, deployment, and evaluation of substantially all volunteer public fire protection and emergency medical services.

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for mandatory extracts are given in Chapter 2 and those for nonmandatory extracts are given in Annex D. Editorial changes to extracted material consist of revising references to an appropriate division in this document or the inclusion of the document number with the division number when the reference is to the original document. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex D.

Chapter 1 Administration

1.1* Scope. This standard contains minimum requirements relating to the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the public by substantially all volunteer fire departments.

1.1.1* The requirements address functions and outcomes of fire department emergency service delivery, response capabilities, and resources.

1.1.2 This standard also contains minimum requirements for managing resources and systems, such as health and safety, incident management, training, communications, and preincident planning.

1.1.3 This standard addresses the strategic and system issues involving the organization, operation, and deployment of a fire department and does not address tactical operations at a specific emergency incident.

1.1.4 This standard does not address fire prevention, community education, fire investigations, support services, personnel management, and budgeting.

1.2 Purpose.

1.2.1 The purpose of this standard is to specify the minimum criteria addressing the effectiveness and efficiency of the volunteer public fire suppression operations, emergency medical service, and special operations delivery in protecting the citizens of the jurisdiction.

1.2.2 Nothing herein is intended to restrict any jurisdiction from exceeding these minimum requirements.

1.3* Application. The authority having jurisdiction determines if this standard is applicable to its fire department.

1.4* Equivalency. Nothing in this standard is intended to prohibit the use of systems, methods, or approaches of equivalent or superior performance to those prescribed in this standard. Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 472, *Standard for Professional Competence of Responders to Hazardous Materials Incidents,* 2002 edition.

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems,* 2002 edition.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program,* 2002 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System,* 2002 edition.

2.3 Other Publications. (Reserved)

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not included, common usage of the terms shall apply.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* 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.

3.2.3 Shall. Indicates a mandatory requirement.

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

3.2.5 Standard. A document, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix or annex, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.

3.3 General Definitions.

3.3.1 Aid.

3.3.1.1* ***Automatic Aid.*** A plan developed between two or more fire departments for immediate joint response on first alarms. [**1142:**3.3]

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3.3.1.2* ***Mutual Aid.*** Reciprocal assistance by emergency services under a prearranged plan. [**402:**3.3]

3.3.2* Alarm. A signal or message from a person or device indicating the existence of a fire, medical emergency, or other situation that requires emergency services response.

3.3.3 Area.

3.3.3.1 ***Remote Area.*** A geographic area that requires a travel distance of at least 8 miles to provide emergency services.

3.3.3.2 ***Rural Area.*** As defined by the U.S. Census Bureau, an area with fewer than 500 people per square mile.

3.3.3.3 ***Suburban Area.*** As defined by the U.S. Census Bureau, an area with between 500 people and 1000 people per square mile.

3.3.3.4 ***Urban Area.*** As defined by the U.S. Census Bureau, an area with at least 1000 people per square mile.

3.3.4* Company. A group of members with the following characteristics: (1) under the direct supervision of an officer; (2) trained and equipped to perform assigned tasks; (3) usually organized and identified as engine companies, ladder companies, rescue companies, squad companies, or multifunctional companies; (4) usually operating with one piece of fire apparatus (engine, ladder truck, elevating platform, quint, rescue, squad, ambulance); (5) arriving at the incident scene on fire apparatus; (6) company configurations shall be permitted to allow for multiple apparatus that are dispatched and arrive together, continuously operate together, and are managed by a single company officer.

3.3.5* Demand Zone Levels. An area used to define or limit the management of a risk situation.

3.3.6 Emergency Incident. Any situation to which the emergency services organization responds to deliver emergency services, including rescue, fire suppression, emergency medical care, special operations, law enforcement, and other forms of hazard control and mitigation. [**1561:**3.3]

3.3.7 Emergency Medical Care. The provision of treatment to patients, including first aid, cardiopulmonary resuscitation, basic life support (First Responder or EMT level), advanced life support (Paramedic level), and other medical procedures that occur prior to arrival at a hospital or other health care facility. [**1581:**1.3]

3.3.8 Fire Apparatus. A fire department emergency vehicle used for rescue, fire suppression, or other specialized functions.

3.3.9 Fire Department.

3.3.9.1 ***Combination Fire Department.*** A fire department having emergency service personnel comprising less than 85 percent majority of either volunteer or career membership.

3.3.9.2* ***Public Fire Department.*** An organization providing rescue, fire suppression, emergency medical services, and related activities to the public.

3.3.9.3 ***Volunteer Fire Department.*** A fire department having volunteer emergency service personnel comprising 85 percent or greater of its department membership.

3.3.10 Fire Department Member. See 3.3.21, Member.

3.3.11 Fire Department Vehicle. Any vehicle, including fire apparatus, operated by a fire department. [**1002:**3.3]

3.3.12 Fire Protection. Methods of providing fire detection, control, and extinguishment.

3.3.13* Fire Suppression. The activities involved in controlling and extinguishing fires. [**1500:**3.3]

3.3.14* First Responder (EMS). Functional provision of initial assessment (airway, breathing, and circulatory systems) and basic first aid intervention, including CPR and automatic external defibrillator (AED) capability.

3.3.15* Hazard. The potential for harm or damage to people, property, or the environment.

3.3.16 Hazardous Material. A substance (solid, liquid, or gas) that when released is capable of creating harm to people, the environment, and property. [**472:**3.3]

3.3.17 Incident Commander. The person who is responsible for all decisions relating to the management of the incident and is in charge of the incident site. [**472:**3.3]

3.3.18* Incident Management System (IMS). An organized system of roles, responsibilities, and standard operating procedures used to manage emergency operations.

3.3.19 Initial Attack. Fire-fighting efforts and activities that occur in the time increment between the arrival of the fire department on the scene of a fire and the tactical decision by the Incident Commander that the resources dispatched on the original response will be insufficient to control and extinguish the fire, or that the fire is extinguished.

3.3.20 Life Support.

3.3.20.1 ***Advanced Life Support (ALS) (EMS).*** Functional provision of advanced airway management including intubation, advanced cardiac monitoring, manual defibrillation, establishment and maintenance of intravenous access, and drug therapy.

3.3.20.2* ***Basic Life Support (BLS).*** Emergency medical treatment at a level as defined by the medical authority having jurisdiction. [**1500:**3.3]

3.3.21* Member. A person(s) involved in performing the duties and responsibilities of a fire department, under the auspices of the organization. [**1500:**3.3]

3.3.22 Officer.

3.3.22.1* ***Company Officer.*** A supervisor of a crew/company of personnel.

3.3.22.2 ***Incident Safety Officer.*** An individual appointed to respond or assigned at an incident scene by the incident commander to perform the duties and responsibilities of that position as part of the command staff.

3.3.22.3* ***Supervisory Chief Officer.*** A member whose responsibility is above that of a company officer, who responds automatically and/or is dispatched to an alarm beyond the initial alarm capabilities, or other special calls.

3.3.23 Operations.

3.3.23.1 ***Emergency Operations.*** Activities of the fire department relating to rescue, fire suppression, emergency medical care, and special operations, including response to the scene of the incident and all functions performed at the scene. [**1500:**3.3]

3.3.23.2 ***Special Operations.*** Those emergency incidents to which the fire department responds that require specific and advanced training and specialized tools and equipment. [**1500:**3.3]

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3.3.24* Rapid Intervention Crew (RIC). A dedicated crew of fire fighters who are assigned to account for and rescue trapped or lost members.

3.3.25 Rescue. Those activities directed at locating endangered persons at an emergency incident, removing those persons from danger, treating the injured, and providing for transport to an appropriate health care facility. [**1410:**1.3]

3.3.26 Standard Operating Procedure. An organizational directive that establishes a standard course of action. [**1201:**1.7]

3.3.27 Structural Fire Fighting. The activities of rescue, fire suppression, and property conservation in buildings, enclosed structures, aircraft interiors, vehicles, vessels, aircraft, or like properties that are involved in a fire or emergency situation. [**1710:**3.3]

3.3.28 Team. Two or more individuals who have been assigned a common task and are in communication with each other, coordinate their activities as a work group, and support the safety of one another. [**1081:**3.3]

Chapter 4 Organization, Operation, and Deployment

4.1* Fire Suppression Organization. Fire suppression operations shall be organized to ensure that the fire department's fire suppression capability includes sufficient personnel, equipment, and other resources to deploy fire suppression resources efficiently, effectively, and safely.

4.1.1* The authority having jurisdiction shall promulgate the fire department's organizational, operational, and deployment procedures by issuing written administrative regulations, standard operating procedures, and departmental orders.

4.1.1.1* Fire department procedures shall clearly state the succession of command responsibility.

4.2* Community Risk Management. The fire department shall participate in a process that develops a community fire and emergency medical services risk management plan.

4.2.1 The specific role of the fire department and other responding agencies shall be defined by the community risk management plan.

4.2.2* The number and type of units assigned to respond to a reported incident shall be determined by risk analysis and/or prefire planning.

4.2.3 Hazardous Materials.

4.2.3.1 The fire department shall participate in a process that develops a community risk management plan with respect to the risks associated with the storage, use, and transportation of hazardous materials.

4.2.3.2 The specific role of the fire department and other responding agencies shall be defined by the community risk management plan for hazardous materials and other special operations.

4.3 Staffing and Deployment.

4.3.1 The fire department shall identify minimum staffing requirements to ensure that a sufficient number of members are available to operate safely and effectively.

4.3.2* Table 4.3.2 shall be used by the AHJ to determine staffing and response time capabilities, and the fractal accomplishment of that for reporting purposes as required in 4.4.2.

Table 4.3.2 Staffing and Response Time

Demand Zone	Demographics	Staffing and Response Time	Percentage
Special risks	AHJ	AHJ	90
Urban	>1000 people/mi.^{2}	15/9	90
Suburban	500–1000 people/mi.^{2}	10/10	80
Rural	< 500 people/mi.^{2}	6/14	80
Remote*	Travel dist ≥ 8 mi.	4	90

*Upon assembling the necessary resources at the emergency scene, the fire department should have the capability to safely commence an initial attack within 2 minutes 90 percent of the time.

4.3.3* Personnel responding to fires and other emergencies shall be organized into company units or response teams and shall have required apparatus and equipment.

4.3.4* Standard response assignments and procedures, including mutual aid response and mutual aid agreements predetermined by the location and nature of the reported incident, shall regulate the dispatch of companies, response groups, and command officers to fires and other emergency incidents.

4.4 Reporting Requirements.

4.4.1* Report for Each Response. The fire department shall maintain a standard report containing specified information for each response.

4.4.1.1 This report shall include the location and nature of the fire and emergency and describe the operations performed.

4.4.1.2 This report shall identify the members responding to the incident.

4.4.2 Annual Evaluation.

4.4.2.1 The fire department shall evaluate its level of service and deployment delivery and response time objectives on an annual basis.

4.4.2.2 The evaluation shall be based on data relating to level of service, deployment, and the achievement of each response time objective in each demand zone within the jurisdiction of the fire department.

4.4.3 Quadrennial Report. The fire department shall provide the AHJ with a written report, quadrennially, which shall be based on the annual evaluations required by 4.4.2.

4.4.3.1 The quadrennial report shall define demand zones and/or circumstances in which the requirements of this standard are not being met.

4.4.3.2 This report shall explain the predictable consequences of identified deficiencies and address the steps within a fire department strategic plan necessary to achieve compliance.

4.4.3.3 Standard response assignments and procedures, including mutual aid response and mutual aid agreements predetermined by the location and nature of the reported incident, shall regulate the dispatch of companies, response groups, and command officers to fires and other emergency incidents.

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4.5 Fire Suppression Operations.

4.5.1* Incident Commander. One individual shall be assigned as the incident commander.

4.5.1.1* The assumption and identification of command shall be communicated to all units responding to or involved at the incident scene.

4.5.1.2 The incident commander shall be responsible for the overall coordination and direction of all activities for the duration of the incident.

4.5.1.3 The incident commander shall ensure that a personnel accountability system is immediately utilized to rapidly account for all personnel at the incident scene.

4.5.2 Company Officer. The company officer/crew leader shall at all times be aware of the identity, location, and activity of each member assigned to the company.

4.5.2.1 Each member of the company shall be aware of the identity of the company officer/crew leader.

4.5.2.2 Orders addressed to individual members, particularly verbal orders and orders at incident scenes, shall be transmitted through the company officer.

4.6 Initial Attack.

4.6.1* Initial attack operations shall be organized to ensure that at least four members are assembled before interior fire suppression operations are initiated at a working structural fire.

4.6.2 In the hazardous area, two individuals shall work as a team.

4.6.3 Outside the hazardous area, two individuals shall be present for assistance or rescue of the team operating in the hazardous area. One of the two individuals assigned outside the hazardous area shall be permitted to be engaged in other activities.

4.6.4 The assignment of any individuals shall not be permitted if abandoning that individual's critical task(s) to perform rescue clearly jeopardizes the safety and health of any fire fighter operating at the incident.

4.6.5 Initial attack operations shall be organized to ensure that if, upon arrival at the emergency scene, initial attack personnel find an imminent life-threatening situation where immediate action could prevent the loss of life or serious injury, such action is permitted with less than four personnel when conducted in accordance with NFPA 1500.

4.6.6 The fire department shall have the capability for sustained operations, including fire suppression; engagement in search and rescue, forcible entry, ventilation, and preservation of property; accountability for personnel; a dedicated rapid intervention crew (RIC); and provision of support activities for those situations that are beyond the capability of the initial attack.

4.7 Intercommunity Organization.

4.7.1* Mutual aid, automatic aid, and fire protection agreements shall be in writing and shall address issues such as liability for injuries and deaths, disability retirements, cost of service, authorization to respond, staffing, and equipment, including the resources to be made available and the designation of the incident commander.

4.7.2 Procedures and training of personnel for all fire departments in mutual aid, automatic aid, and fire protection agreement plans shall be comprehensive to produce an effective fire force and to ensure uniform operations.

4.7.3 Companies responding to mutual aid incidents shall be equipped with communications equipment that allow personnel to communicate with the incident commander and division officers, group officers, or sector officers.

4.8* Emergency Medical Services.

4.8.1 Purpose.

4.8.1.1 EMS operations shall be organized to ensure the fire department's emergency medical capability includes personnel, equipment, and resources to deploy the initial arriving company and additional alarm assignments.

4.8.1.2 The fire department shall be permitted to use established automatic mutual aid or mutual aid agreements to comply with the requirements of Section 4.8.

4.8.2* The provisions of this section shall apply only to those fire departments that are involved in EMS delivery.

4.8.3* The fire department shall clearly document its role, responsibilities, functions, and objectives for the delivery of EMS.

4.8.4 System Components.

4.8.4.1 The basic treatment levels within an EMS system, for the purposes of this standard, shall be categorized as first responder, basic life support (BLS), and advanced life support (ALS).

4.8.4.2 The specific patient treatment capabilities associated with each level shall be determined by the authority having jurisdiction for the approval and licensing of EMS providers within each state or province.

4.8.5* EMS System Functions.

4.8.5.1 The following shall be considered the five basic functions within an EMS system:

(1) First responder
(2) Basic life support (BLS) response
(3) Advanced life support (ALS) response
(4) Patient transport in an ambulance or alternative vehicle designed to provide for uninterrupted patient care at the ALS or BLS level while en route to a medical facility
(5) Assurance of response and medical care through a quality management program

4.8.5.2 The fire department shall be involved in providing any or all of the functions identified in 4.8.5.1.

4.8.6 Quality Management.

4.8.6.1 The fire department shall institute a quality management program.

4.8.6.2 All first responder and BLS medical care provided by the fire department shall be reviewed by the fire department medical personnel, and that review process shall be documented.

4.8.6.3 All fire departments with ALS services shall have a named medical director with the responsibility to oversee and ensure quality medical care in accordance with state or provincial laws or regulations. This review process shall be documented.

4.8.6.4 Fire departments providing ALS services shall provide a mechanism for immediate communications with EMS supervision and medical oversight.

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4.9* Special Operations Response.

4.9.1 Capability.

4.9.1.1 Special operations shall be organized to ensure that the fire department's special operations capability includes sufficient personnel, equipment, and resources to efficiently, effectively, and safely deploy the initial arriving company and additional alarm assignments providing such services.

4.9.1.2 The fire department shall be permitted to use established automatic mutual aid or mutual aid agreements to comply with the requirements of Section 4.9.

4.9.2 The provisions of this section shall apply to fire departments that are involved in the delivery of special operations response.

4.9.3 The fire department shall adopt a special operations response plan and standard operating procedures that specify the role and responsibilities of the fire department and the authorized functions of members responding to hazardous materials emergency incidents.

4.9.4 All fire department members who are expected to respond to emergency incidents beyond the first responder operations level for hazardous materials response shall be trained to the applicable requirements of NFPA 472.

4.9.5 The fire department shall have the capacity to implement an RIC during all special operations incidents that would subject fire fighters to immediate danger of injury, or in the event of equipment failure or other sudden events, as required by NFPA 1500.

4.9.6* Special Operations.

4.9.6.1 When a higher level of emergency response is needed beyond the capability of the fire department for special operations, the fire department shall determine the availability of outside resources that deploy these capabilities and the procedures for initiating their response.

4.9.6.2 The fire department shall be limited to performing only those specific special operations functions for which its personnel have been trained and are properly equipped.

Chapter 5 Systems

5.1* Safety and Health System. A fire fighter occupational safety and health program shall be provided in accordance with NFPA 1500, to form the basic structure of protecting the health and safety of fire fighters, regardless of the scale of the department or the emergency.

5.2* Incident Management System.

5.2.1 An incident management system shall be provided in accordance with NFPA 1561, to form the basic structure of all emergency operations of the fire department, regardless of the scale of the department or the emergency.

5.2.2* An effective incident management system shall be designed to manage incidents of different types, including structure fires, wildland fires, hazardous materials incidents, emergency medical operations, and other types of emergencies that could be handled by the department.

5.3 Training Systems. The fire department shall have a training program and policy that ensures that personnel are trained and competency is maintained to effectively, efficiently, and safely execute all responsibilities consistent with the department's organization and deployment as addressed in Chapter 4.

5.4* Communications Systems.

5.4.1* The fire department shall have a reliable communications system to facilitate prompt delivery of public fire suppression, emergency medical services, and special operations.

5.4.2 All communications facilities, equipment, staffing, and operating procedures shall comply with NFPA 1221.

5.4.3 Operating procedures for radio communications shall provide for the use of standard protocols and terminology at all types of incidents.

5.4.4 Standard terminology, in compliance with NFPA 1561, shall be established to transmit information, including strategic modes of operation, situation reports, and emergency notifications of imminent hazards.

5.5* Pre-Incident Planning. The fire department shall set forth operational requirements to conduct pre-incident planning. Particular attention shall be provided to target hazards.

Annex A Explanatory Material

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.1 The standard includes minimum requirements that are intended to provide effective, efficient, and safe protective services that operate on a sound basis to prevent fires, reduce risk to lives and property, deal with incidents that occur, and prepare for anticipated incidents. It sets minimum standards considered necessary for the provision of public fire protection by volunteer fire departments. It addresses the structure and operation of organizations providing such services, including fire suppression, emergency medical services, hazardous materials operations, and special operations.

A.1.1.1 The delivery of services that are directed toward saving lives from a variety of perils is generally included in the mission of the fire service, although the nature and extent of these services varies from one jurisdiction to another.

In addition to duties at fires, fire departments should be prepared to perform rescue work and provide emergency care for those injured in connection with incidents such as traffic accidents, train wrecks, aircraft crashes, floods, windstorms, weapons of mass destruction/terrorism, and earthquakes, unless specifically excluded from involvement.

In many areas, the fire department is designated as the primary provider of emergency medical services (EMS). This responsibility could involve the delivery of basic or advanced (paramedic) life-support services and could include ambulance service. These services could be performed by fire fighters or by members of the fire department specializing in EMS. The impact on fire department resources and the department's continued ability to perform its other responsibilities should be considered when the department undertakes the EMS activity.

A.1.3 The authority having jurisdiction generally has the responsibility to determine the following:

(1) Scope and level of service provided by the fire department

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(2) Necessary level of funding
(3) Necessary level of personnel and resources, including facilities

In order to provide service, the authority having jurisdiction can have the power to levy taxes, solicit funding, own property and equipment, and cover personnel costs. The authority necessary is conveyed by law of a local jurisdiction.

In addition, the governing body also should monitor the achievement of the management goals of the department, such as fire prevention, community life safety education, fire suppression, employee training, communications, maintenance, and department administration.

Spelling out the specific parameters of services to be provided allows the fire department to plan, staff, equip, train, and deploy members, career and volunteer, to perform these duties. It also gives the governing body an accounting of the costs of services and allows it to select those services they can afford to provide. Likewise, the governing body should identify services it cannot afford to provide and cannot authorize the fire department to deliver; those services should be assigned to another agency.

The fire department should be no different from any other government agency that has the parameters of its authority and services clearly defined by the governing body.

A.1.4 See Figure C.1(a) through Figure C.1(d).

A.3.2.1 Approved. 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, 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 that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase "authority having jurisdiction," or its acronym AHJ, 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, or 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 or her 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.

A.3.3.1.1 Automatic Aid. This process is accomplished through simultaneous dispatch, documented in writing, and included as part of a communication center's dispatch protocols.

A.3.3.1.2 Mutual Aid. This is part of the written deployment criteria for response to alarms, as dispatched by the communications center.

A.3.3.2 Alarm. In some jurisdictions this could be referred to as an incident or call for service.

A.3.3.4 Company. *Company,* as used in this standard, is synonymous with company unit, response team, crew, and response group, rather than a synonym for a fire department. Jurisdictions exist where the response capability of the initial arriving company is configured with the response of two apparatus. In some jurisdictions, the fire apparatus does not have seated and belted positions for four personnel and therefore would respond with an additional vehicle(s) [i.e., personnel-owned vehicles (POVs)], in concert with the initial arriving engine to carry additional personnel. This response would ensure that a minimum of four personnel are assigned to and deployed as a company.

The intent of this definition and the requirements in the standard are to ensure that these two (or more) pieces of apparatus would always be dispatched and respond together as a single company. Some examples of this response include the following:

(1) Engine and tanker/tender that responds outside a municipal water district
(2) Multiple piece company assignment, specified in a fire department's response SOPs, such as an engine company response with a pumper and a hose wagon
(3) Engine with a vehicle personnel carrier
(4) Engine with an ambulance or rescue unit
(5) Engine and members who respond in their personal vehicles (POVs)

A.3.3.5 Demand Zone Levels. A demand zone can be a single building or a group of buildings. It is usually defined in terms of geographical boundaries, called fire management areas or fire management zones.

A.3.3.9.2 Public Fire Department. The term *fire department* includes any public, governmental, private, or military organization engaging in this type of activity.

A.3.3.13 Fire Suppression. Fire suppression includes all activities performed at the scene of a fire or training exercise that expose fire department members to the dangers of heat, flame, smoke, and other products of combustion, explosion, or structural collapse.

A.3.3.14 First Responder (EMS). A first responder assists higher level EMS providers.

A.3.3.15 Hazard. Hazards include the characteristics of facilities, equipment systems, property, hardware, or other objects, and the actions and inactions of people that create such hazards.

A.3.3.18 Incident Management System (IMS). Such systems are also referred to as incident command systems (ICS).

A.3.3.20.2 Basic Life Support (BLS). Basic life support providers assist higher-level EMS providers.

A.3.3.21 Member. A fire department member can be a full-time or part-time employee or a paid or unpaid volunteer, can occupy any position or rank within the fire department, and can engage in emergency operations.

A.3.3.22.1 Company Officer. This person could be someone appointed in an acting capacity. The rank structure could be either sergeant, lieutenant, or captain.

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A.3.3.22.3 Supervisory Chief Officer. In some jurisdictions, this is the rank of battalion chief, district chief, deputy chief, assistant chief, or senior divisional officer (UK fire service). The purpose of their response is to assume command, through a formalized transfer-of-command process, and to allow company officers to directly supervise personnel assigned to them.

A.3.3.24 Rapid Intervention Crew (RIC). Emergency services personnel respond to many incidents that present a high risk to personnel safety. Departments in compliance with 29 CFR 1910.134 need to have a minimum of two people on scene fully equipped when members are operating in an immediately dangerous to life and health (IDLH) or potentially IDLH atmosphere. The primary purpose is the rescue of injured, lost, or trapped fire fighters. Departments utilizing an incident management system in accordance with NFPA 1561, or 29 CFR 1910.120 along with a personnel accountability system, have incorporated the RIC into their management system. Many departments have redefined their response plans to include the dispatch of an additional company (i.e., engine, rescue, or truck) to respond to incidents and to stand by as the RIC/company. Incident commanders can assign additional RICs based on the size and complexity of the incident scene. This requirement is also included as part of special operations incidents in NFPA 1500, Chapter 8.

A.4.1 Suppression capability is an expression of how much fire-fighting power can be put into action when there is a fire. It includes the amount of apparatus, equipment, and personnel available; the time needed to respond and place equipment in action; the water supply; the application of strategy and tactics; the level of training; and all of the components that add up to effective fireground operations.

A.4.1.1 Departmental regulations and operating procedures and orders should be developed for the purpose of ensuring uniformity and effectiveness in department actions and operations. These procedures should be published and circulated to all members, and training should be provided whenever major changes or additions are made. A system should be established that requires each member to read and acknowledge existing and revised regulations and procedures.

Such procedures should cover matters not subject to frequent changes and should be reviewed at least annually to ensure that they are current. All members should have access to the system of orders and directives that relate to their unit. Orders should be reviewed periodically by company officers during company meetings or training sessions.

The departmental procedures should specify the channels through which orders are to be transmitted. All orders should pass through the established chain of command and should be acknowledged. The chain of command also should be followed, in reverse order, for reports and other communications from units to headquarters.

A.4.1.1.1 The succession of command responsibility is necessary to provide for continuity of operations following death, injury, disability, or the absence of individuals. Succession should include the job title designation "acting" but should not imply automatic reassignment or promotion.

A.4.2 In many communities, the fire department is assigned primary responsibility for the management of hazardous materials emergencies. In some cases, this includes regulatory responsibilities to identify and minimize risks to the community resulting from the storage, use, transportation, and disposal of hazardous materials. *(See 29 CFR 1910.120.)*

The process used to plan response to these emergencies is also a viable tool for planning response (e.g., fire suppression, emergency medical services, and technical rescue) to other risks within the community. The planning process should be coordinated with community and private sector planning processes that are implemented to meet legal requirements. The resulting comprehensive emergency management plan (CEMP) should be developed by the local emergency planning committee (LEPC) and exercised at least annually. The CEMP should include evacuation plans, intervention strategies, sources of expertise, and specialized assistance and disposal plans. The planning process should identify clearly the authority having jurisdiction for command responsibility during hazardous materials incidents and other emergency responses to incidents within the community

Disaster planning should be coordinated at all levels of government in anticipation of large-scale emergencies. There could be legislation or legal restrictions that establish the overall controlling authority in disaster operations. All planning and activity should occur within the framework of these restrictions. *(See Annex B.)*

NFPA 1600 is a document that provides additional information to assist users in preparing for, responding to, and mitigating disasters in their jurisdictions. In addition, it covers federal, state, and local disaster agencies' roles and responsibilities within a comprehensive planning process.

See NFPA 1250, which provides additional information and tools to assist in the risk management process.

In addition, the United States Fire Administration (USFA) and the International City Management Association (ICMA) have developed a comprehensive community risk management tool, RHAVE. *(See Annex D.)*

A.4.2.2 A variety of factors should be taken into account, including the size, height, and configuration of buildings; special life risks; exposures between structures; construction types; occupancy classifications; and other hazards.

A.4.3.2 Table 4.3.2 outlines demographic areas, as defined by the U.S. Census Bureau; staffing and deployment requirements; and fractal measurements. The suburban area is based on the requirements provided in the report by the Ontario Fire Marshal's Office, "Shaping the Future of Fire Ground Staffing and Delivery Systems within a Comprehensive Fire Safety Effectiveness Model," a report referenced in NFPA 1710, as well. This requirement must be met 80 percent of the time. Rural areas have a lower population density and require six people (two in/two out plus the incident commander and pump operator), a requirement that is derived from the UK Standards of Fire Cover and must be met 80 percent of the time. The remote areas reference the OSHA "two in/two out" requirement and the assembly of four persons 90 percent of the time. Travel distances are varied and can be computed utilizing the ISO travel formula. This travel formula is as follows:

$$1.7 \times \text{distance} + 0.65 = \text{travel time}$$

A.4.3.3 The fire chief should determine the number and type of fire company units to be provided. All personnel except those assigned to staff or support units or those serving as chief officers should be assigned to a specific company unit. It is the fire chief's responsibility to ensure that the best use is made of personnel and equipment. See NFPA 1561 for additional information.

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A.4.3.4 Modern computerized dispatch systems have the capability of providing specific dispatch assignments for individual buildings. Where street fire alarm boxes are provided, a response assignment should be prepared for each box location. Where street boxes are not used, zone numbers should be assigned to different points, sectors, or properties.

The number and type of units assigned to a particular incident depend on the availability of units at the time the incident occurs. Dispatchers should be given the authority to use judgment, within departmental guidelines, when they encounter situations or circumstances that demand modification of normal response assignments.

Procedures for the redistribution of available companies within the jurisdiction should be established in such a manner as to provide the best possible protection in the event of major incidents or high activity. Mutual aid companies should be used for back-up coverage in these situations.

A.4.4.1 Reports on emergencies are essential to providing an accurate record of a department's activities. Reports also serve as a basis for determining local, state, and national fire trends and for establishing the needs of a fire department. NFPA 901 should be used as the basis for classifying data on emergency incidents. The FEMA *National Fire Incident Reporting System* (NFIRS) should form the basis of an incident reporting system. The purpose of 4.4.1 is to inform fire departments of the importance of having a reporting system, even if such a system is not required by local, state, or provincial law.

The requirements of this section apply to a "working structural fire, EMS, or special operations response." It is not intended to track response to debris fires (i.e., dumpsters) or other "still alarms" unless they affect the deployment and response time capabilities that are required in the standard.

A.4.5.1 The responsibility for assigning fire companies at an emergency belongs to the incident commander, who establishes priorities and assigns units based on identified objectives. Normally, on a first alarm response, the first engine company and truck company respond directly to the front of the emergency, while other responding units stand by or stage nearby until assigned to a particular task. Whenever an emergency situation demands extended operational activities, additional alarms should be called to provide reinforcements and a reserve supply of personnel and equipment at the scene.

Arriving companies that have not been assigned according to standard operating procedures or directions from the incident commander should proceed automatically to a standby or staging position. These units should stop short and remain uncommitted about a block from the scene until assigned by the incident commander. Staging positions should take into account access to potential operating positions, water supply, and traffic conditions. The primary emphasis is on avoiding the independent commitment of companies to tasks or positions that conflict with the incident commander's objectives. Once the initial command responsibilities have been completed, the incident commander should begin to obtain progress reports from operating units and evaluate efforts. The initial action plan should then be revised or refined as necessary.

The convergence of many units at the scene of an incident, particularly units that are not part of a planned response system, can cause major problems. Procedures should be established on a regional basis to provide for orderly response when major incidents occur. All responding multiple alarm companies should gather in a specific area designated by the incident commander. This formal staging area should be located away from the emergency scene in order to provide adequate space for assembly of all response apparatus. The first officer to arrive in this designated location should automatically assume control of the staging area. This officer should maintain an accurate log of available companies and, when requested to by command, should verbally assign companies to report to specific sectors or divisions or for specific functions with instructions on where and to whom to report.

A.4.5.1.1 Fire department standard operating procedures should define operational procedures for the passing of or transferring of command. Command should never be transferred to an individual not on the scene. The arrival of senior officers on the scene does not result in an automatic transfer of command. The identity of incident command could change during the course of an incident, but the continuity of responsibility and accountability should be maintained.

On a typical first alarm assignment, the chain of command is usually transferred on the arrival of a chief officer. The officer being relieved should be prepared to provide the superior with an assessment of the general conditions and tactical priorities, such as the location of companies that have been assigned, the identity of companies available for assignment, and the need for additional resources.

The situation faced by a company officer assuming initial command of an incident dictates an operating mode in each case. The basic options available to that officer are as follows:

(1) *Investigation Mode.* If fire is not evident, the first arriving company officer investigates while all other units stand by in staging mode or positions. The company officer assumes command responsibility.
(2) *Initial Attack Mode.* The first arriving company officer assumes command responsibility while leading an initial rapid attack to stabilize the situation. This mode is effective where fast action is critical and will control the situation quickly.
(3) *Command Post Mode.* The first arriving company officer identifies the large, complex situation and assigns resources while setting up a command post operation from the outset.

In each case, the company officer assuming command is fully responsible for the identified tasks assigned to the command function. The degree of personal involvement in tactical actions varies in each mode.

A.4.6.1 RIC members should have the fire fighters' personal protective ensemble and protective equipment, self-contained breathing apparatus, and any specialized rescue equipment that could be needed for the specifics of the operation underway as required by NFPA 1500.

A.4.7.1 Where applicable, the mutual aid agreement should include automatic responses on first alarms (automatic aid). This concept contemplates joint response of designated apparatus and personnel on a predetermined running assignment basis.

Mutual aid concepts should be considered on a regional basis. In an effective mutual aid arrangement, each fire department should retain reserves of personnel and apparatus. Traditionally and legally, overall command of the incident is vested with the senior officer of the jurisdiction experiencing the emergency.

Some areas use consolidated dispatching to coordinate the response of fire companies to assist an outside fire department. The management of responses can be made easier by utilizing computerization, running cards, and other advance planning.

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A.4.8 An emergency medical services (EMS) system is defined as a comprehensive, coordinated arrangement of resources and functions that are organized to respond in a timely, staged manner to medical emergencies, regardless of their cause. The term *system* can be applied locally, at the state, provincial, or national level.

The following are the fundamental functions of an EMS system:

(1) System organization and management
(2) Medical direction
(3) Human resources and training
(4) Communications
(5) Emergency response
(6) Transportation
(7) Care facilities
(8) Quality assurance
(9) Public information and education
(10) Disaster medical services
(11) Research
(12) Special populations

A.4.8.2 See requirements as outlined in NFPA 1710.

A.4.8.3 In addition to the resources provided by the fire department to meet these response criteria, other community resources should be considered. The initial treatment could be enhanced by other means, including citizens trained in cardiopulmonary resuscitation (CPR) or self-help instructions from trained communications personnel. The plan for delivering basic life support should include consideration of these alternatives.

A.4.8.5 The five functions in 4.8.5.1 do not necessarily exist as separate elements in a particular system. The following list of functions outlines different EMS delivery capabilities:

(1) The first responding unit can be an ALS ambulance capable of providing ALS treatment and ambulance transportation.
(2) The first responding unit can be a fire suppression unit capable of providing both initial and advanced-level medical care.
(3) ALS can be provided by the ambulance, an additional fire suppression unit, or a unit that is dedicated to ALS response only.
(4) The system does not necessarily have ALS treatment capability — only a BLS ambulance unit can respond.

A.4.9 Special operations incidents can include, but are not limited to, the following:

(1) Rope rescue including high angle
(2) Water rescue
(3) Trench/collapse rescue
(4) Confined space rescue
(5) Extrication rescue
(6) Air/sea rescue
(7) Urban search and rescue (USAR)
(8) SWAT (special weapons and tactics team) operations

The specific role of the fire department in responding to special operations incidents should be outlined in the community's emergency management plan. This plan will define the scope of activities and responsibilities assigned to the fire department and the level of service that is provided in each area.

A.4.9.6 Although fire departments are called to respond to a variety of incidents and should have the ability to perform special operations to the extent that can be reasonably anticipated, there is significant possibility of being called to a situation that was unanticipated or was impossible to predict. In these situations, the fire department could or could not have the specific training, procedures, or resources to deal with the problem. In those types of incidents, the incident commander is responsible for evaluating the situation, the risks that are involved, and the capabilities of the resources that are available to take action, before an action plan can be developed. The operational risk management guidelines should be used to determine the appropriate action in such circumstances.

A.5.1 This standard addresses all areas of fire service occupational safety and health and serves as an umbrella document for other specific NFPA fire department safety and health documents such as NFPA 1500. In addition, it also meets the intent of 29 CFR 1910.134.

A.5.2 Emergency incidents can involve operations that vary considerably in their complexity and scale. The control of these incidents depends on the planned, systematic implementation of an effective fireground organization to accomplish identified objectives. Every fire department, regardless of size, needs a proper system to regulate and direct emergency forces and equipment at both routine and major incidents. The incident management system forms the basic structure of operations, regardless of scale. An effective system is designed to manage incidents of different types, including structure fires, wildland fires, hazardous materials incidents, and medical and other emergencies. See NFPA 1561.

A.5.2.2 Incident management systems are designed to provide a standard approach and response to all types of incidents and have been developed and implemented by many fire departments. A basic concept of these systems uses an incremental approach in building a command structure, starting with the first officer arriving at the scene of an incident. The development of the command structure should coincide with the commitment of emergency forces assigned to the situation. The specific methods used by various fire departments differ, but the essential operational objectives remain consistent. The main distinguishing characteristics of the various incident management systems currently employed involve terminology and specific details of organization structures.

Individuals with specific expertise, particularly in highly technical areas, perform some functions best. The fire department should endeavor to have more than one qualified individual to perform all essential functions within the incident management system.

A model incident management system has been developed by the National Fire Service Incident Management System Consortium. This model combines command strategy with organizational procedures and is designed primarily for structure fire incidents using up to 25 fire companies, though much of the organizational design is applicable to other types of emergency incidents. The model reflects a merger of the California Firescope Incident Command System and the Phoenix Fireground Command System.

A.5.4 The provision and operation of a reliable communications system is essential to the delivery of public fire services. The nature and extent of the system provided will vary with the size and nature of the jurisdiction served, the services provided, and other local conditions and preferences.

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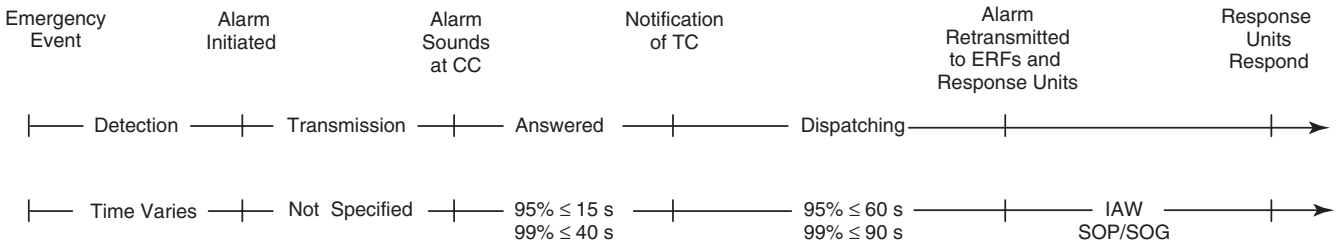
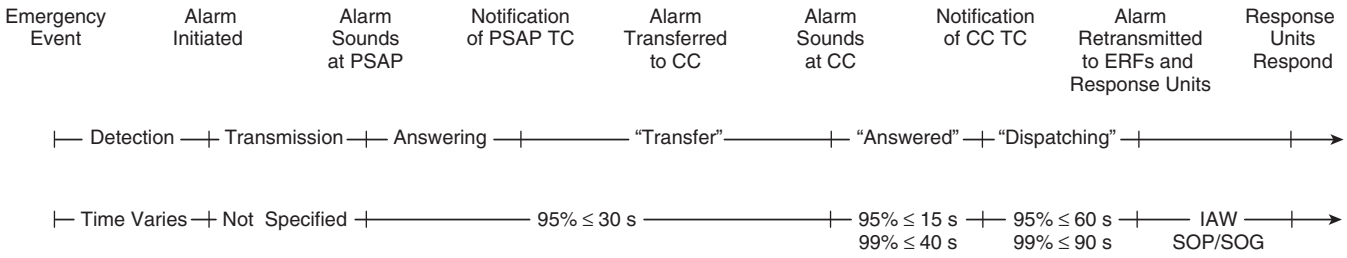


Notes: 1. *Alarm Sounds* means audible or visual annunciation, or both.
2. *TC* stands for Telecommunicator.
3. *CC* stands for Communications Center.
4. *IAW* stands for *in accordance with*.

FIGURE A.5.4.1(a) Alarm Time Line Where Primary PSAP Is Communications Center.



Notes: 1. *Alarm Sounds* means audible or visual annunciation, or both.
2. *TC* stands for Telecommunicator.
3. *CC* stands for Communications Center.
4. *IAW* stands for *in accordance with*.

FIGURE A.5.4.1(b) Alarm Time Line Where Primary PSAP Is Other Than Communications Center.

A fire communications system could serve an individual jurisdiction or multiple jurisdictions. In many cases, a regional system, operating under a valid intergovernmental agreement, provides operational advantages and reduced overall costs as compared with a number of smaller systems serving individual jurisdictions. The benefits could be reflected in a more functional mutual aid system, as well as in operational advantages within the communications system itself.

A.5.4.1 Figure A.5.4.1(a) and Figure A.5.4.1(b) provide time lines for those communication centers that function as both a primary PSAP and a secondary PSAP.

A.5.5 Fire departments, when conducting prefire planning, should use NFPA 1620 for fires and other related emergencies. The fire department should pay particular attention to target hazards.

Annex B Risk Management Model

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

B.1 This model is used as an example of how a communitywide risk management plan can be utilized to protect both citizens and property. While NFPA 1720 is scoped strictly to focus on deployment, staffing, and service levels, there is a realization that this is but one component of a total community fire protection planning process. An AHJ can determine that other components could reduce the risks of fire and therefore adopt stronger building and fire prevention codes, enforce those more vigorously, and enhance their public life safety education components. These models are included for that purpose. Figure B.1 illustrates a fire department process map.

B.1.1 This annex addresses the need for fire departments to develop an overall "defense-in-depth" strategy for the delivery of fire services. The development of such a strategy should include an assessment of the tools available to the fire service for accomplishing the goals of fire safety.

B.1.2 Fire safety objectives can be defined as those ideas that a department aspires to deliver. For example, fire department objectives could include such statements as "Maintain injuries and life/property losses as low as reasonably achievable (community and department)." The accomplishment of this objective should not be left to fire-fighting operations alone. See Figure B.1.2 for fire safety concepts.

B.1.3 The fire department must work with the community to develop an integrated risk plan and establish methods to appropriately manage the risk identified. NFPA 1250 covers department risk, and NFPA 551 covers community risk plans.

B.1.4 Fire risk management for the fire department offers two methods for meeting the objective to maintain fire losses at reasonable levels: fire prevention and fire impact management.

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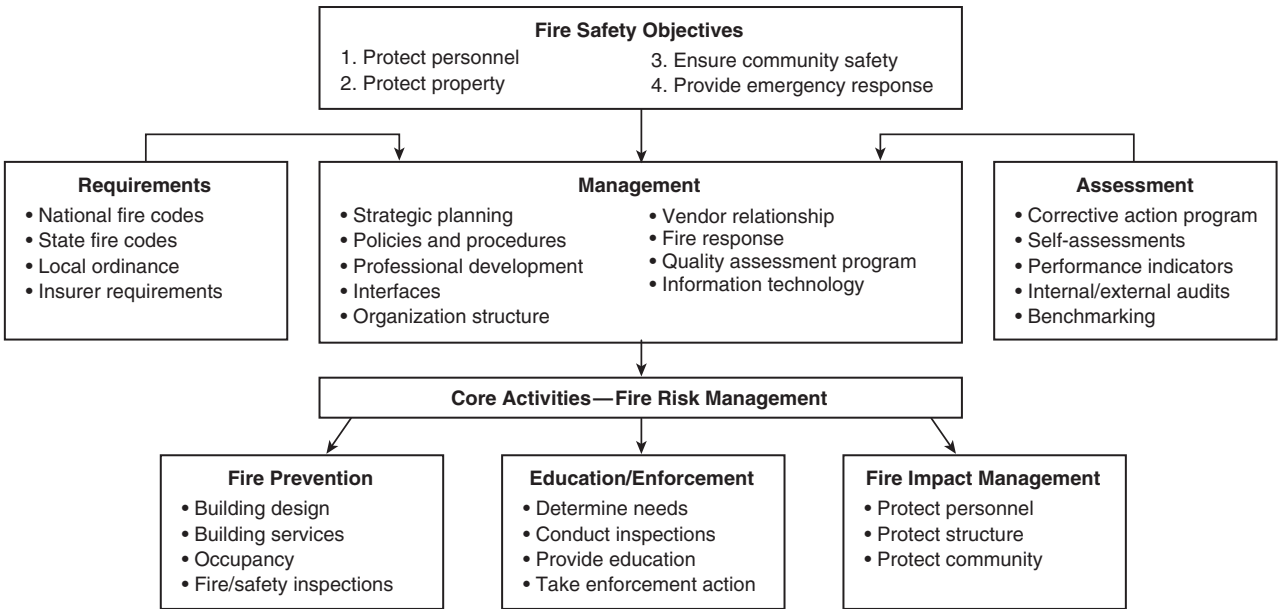

FIGURE B.1 Fire Department Process Map.

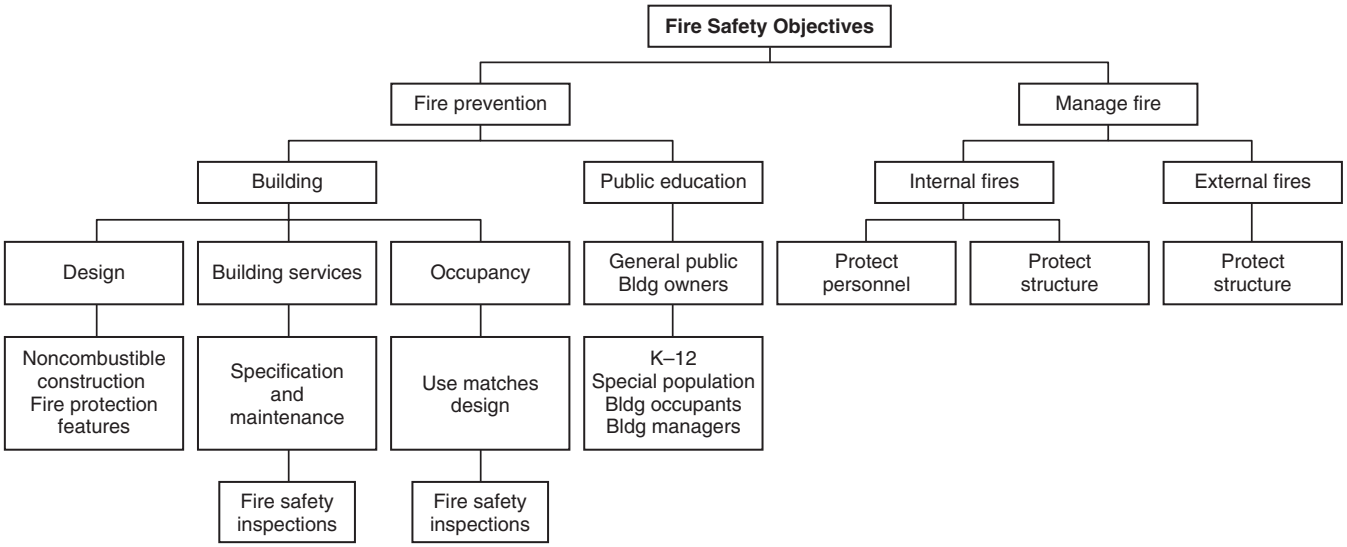

FIGURE B.1.2 Fire Safety Concepts for Fire Department Operations.

B.1.5 Fire prevention is not simply preventing fire. It is the systematic application of codes, standards, engineering principles, and an understanding of human behavior to achieve the objective of limiting the loss of life and property.

B.1.5.1 As outlined in NFPA 1, fire prevention includes egress, construction design, building services, fire protection, and occupancy. All of these elements work together to provide the occupants and fire department personnel with a level of fire safety not otherwise available.

B.1.5.2 By ensuring that each of these elements is balanced, the fire department can maintain a reasonable level of risk for the community and the department. See Figure B.1.5.2(a) through Figure B.1.5.2(e).

B.1.5.3 To provide risk management, the fire department must utilize all of the tools available. In order of preference, those tools are as follows:

(1) Fire-safe design and construction
(2) Suppression systems
(3) Detection systems
(4) Occupant fire prevention practices
(5) Fire department-conducted fire-safety inspections
(6) Fire-rescue response

B.1.5.4 Figure B.1.5.4 shows the effect of construction type and levels of fire protection.

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Probability	Consequence			
	Catastrophic	Critical	Marginal	Negligible
Frequent				
Probable				
Occasional				
Remote				
Improbable				

Immediate response, large-scale
Rapid response
Loss of life not likely
Loss of life or property not likely

FIGURE B.1.5.2(a) Risk Evaluation (Speed and Weight of Response).

Probability that a fire will occur on a scale of 0 percent to 100 percent

Consequences of the fire as measured by loss or type of damage. The type of loss will be viewed differently by various organizations.

FIGURE B.1.5.2(b) Risk: Probability × Consequence.

Frequent: Likely to occur often

Probable: Will occur several times during life of structure

Occasional: Likely to occur sometime during the life of the structure

Remote: Unlikely, but possible during the life of the structure

Improbable: So unlikely to occur that it can be assumed not to be experienced during the life of the structure

FIGURE B.1.5.2(c) Probability Definitions.

Catastrophic: Death, loss of structure; significant public interest or regulatory intervention occurs or reasonably could occur

Critical: Severe injury, major structure damage, or loss of production capability

Marginal: Minor injury, minor structure damage, or fire confined to area of origin

Negligible: No injury, no structure damage, no production interruption

FIGURE B.1.5.2(d) Consequence Definitions.

Igniters	Fuel Package (combustible content or construction)				
	Very High	High	Medium	Low	Negligible
Negligible					
Low					
Medium					
High					
Very High					

This chart could be used to evaluate the probability of a fire occurring by evaluating the types of ignition sources and the types of available combustible materials.

As an example, cutting or welding operations with oil-soaked cardboard in the work area could be considered a Very High type of igniter, and oil-soaked cardboard would be a Very High combustible material.

FIGURE B.1.5.2(e) Fire Potential Matrix.

Protection	Construction Type				
	I	II	III	IV	V
Suppression					
Detection					
Barriers					
Prevention					
Inspections					

Construction types follow the NFPA classifications.

For the left column, the logic would be structures with the most protection (automatic sprinklers) offer less risk than those structures that rely solely on fire-safety inspections.

FIGURE B.1.5.4 Construction versus Fire Risk Management Techniques.

B.1.5.5 A structure designed and constructed to withstand the effects of fire is the most important asset in achieving fire risk management. A structure relying solely on fire-rescue response offers the greatest challenge to the occupants and fire department personnel.

B.1.6 Fire impact management is the ability to manage the impact of a fire on occupants and structures. The participation of the fire department in the design, construction, maintenance, and use of a structure provides defense-in-depth against fire losses.

B.1.6.1 Structures that have been designed with noncombustible construction, are protected with fire protection systems, and are routinely inspected to ensure appropriate occupant use are most likely to provide the lowest risk levels and therefore are the least difficult to manage.

B.1.6.2 Fire-fighting operations on fully compliant structures for which the fire fighters know the occupancy conditions can be conducted with a plan that commits resources only as necessary to accomplish the pre-established goals.

B.1.6.3 Pre-established goals for each structure will define the commitment of resources in order to limit risk to occupants, the structure, and fire department personnel.

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Annex C Examples of Performance Measurements

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

C.1 Figure C.1(a) through Figure C.1(d), developed by the Ontario Fire Marshal's Office as part of its "Performance Measurement and Benchmarking Project," provide an evaluation tool to help municipalities measure all the components of community fire protection planning. The full model is a product of work that is available by contacting the Fire Marshal's Office. *(See Annex D.)*

In addition, a municipality can use the following EMS performance measurements, which can also be used when an AHJ has contracted EMS services:

(1) Vision or Ultimate Outcome: increase the health of the community by doing the following:
   (a) Reduce death
   (b) Reduce disability
   (c) Increase emotional well-being
   (d) Prevent injury and illness
   (e) Increase workplace productivity

(2) Service users include the following:
   (a) Residents
   (b) Businesses
   (c) Industries
   (d) Other service organizations

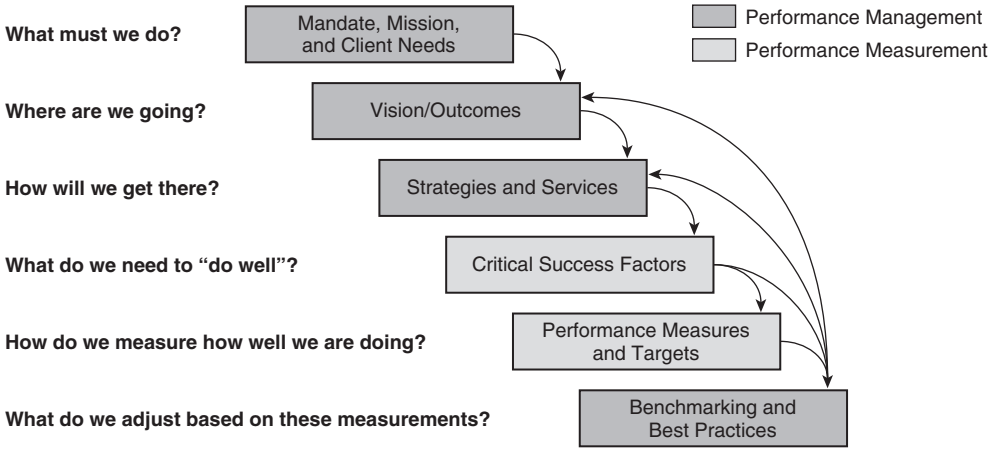

FIGURE C.1(a) Performance Management Framework. *(Source: Ontario Fire Marshal's Office.)*

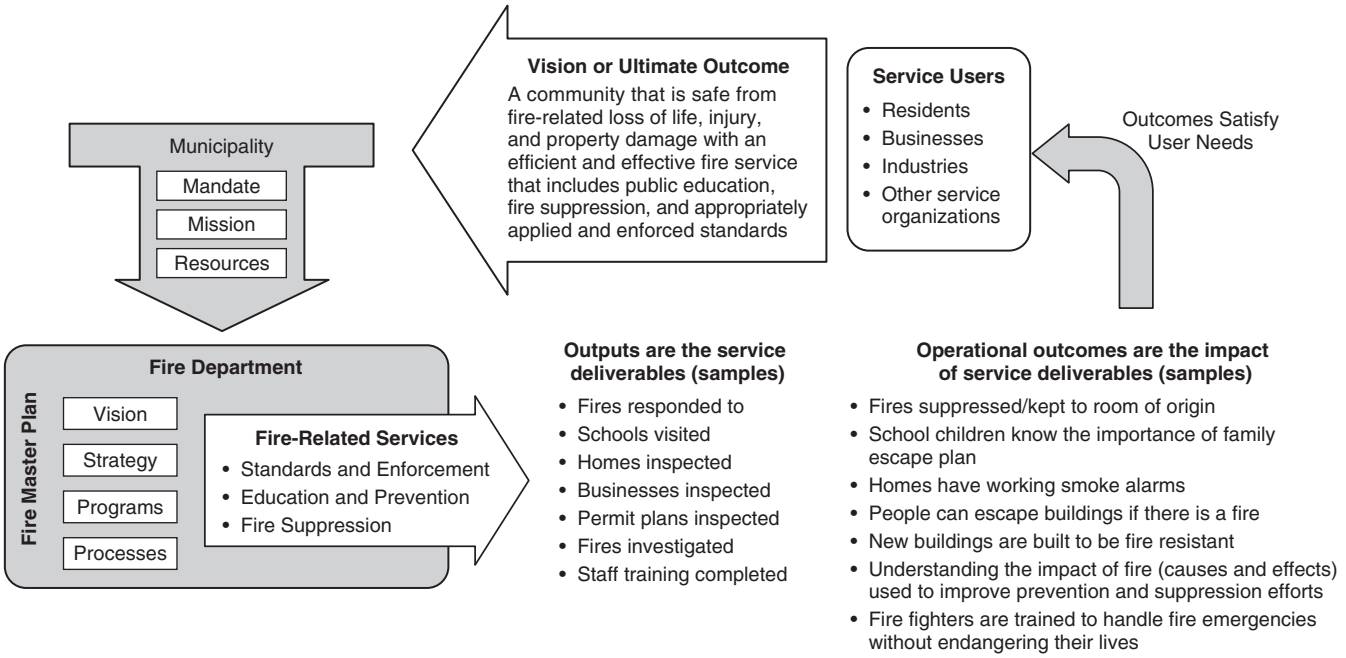

FIGURE C.1(b) Fire Services Delivery Model. *(Source: Ontario Fire Marshal's Office.)*

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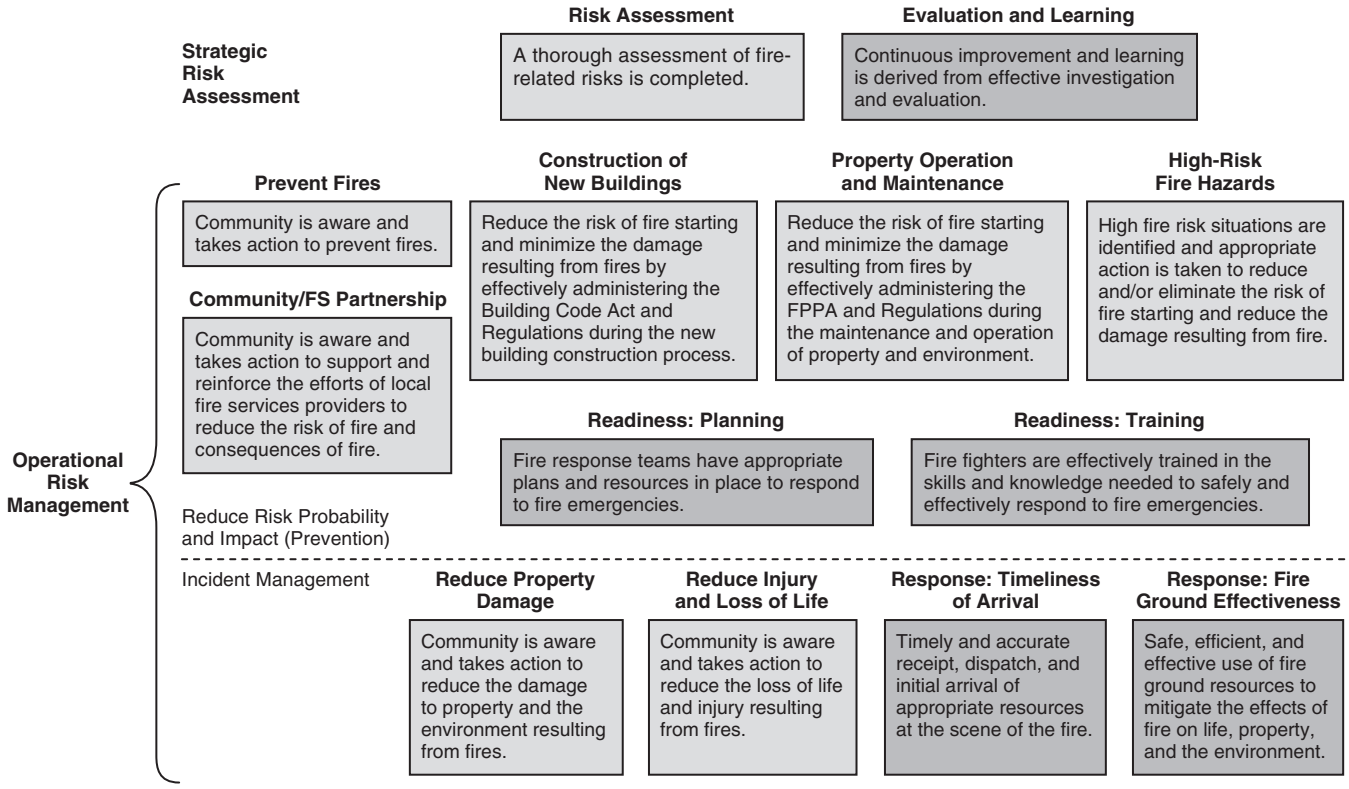

FIGURE C.1(c) Fire Protection Outcomes. *(Source: Ontario Fire Marshal's Office.)*

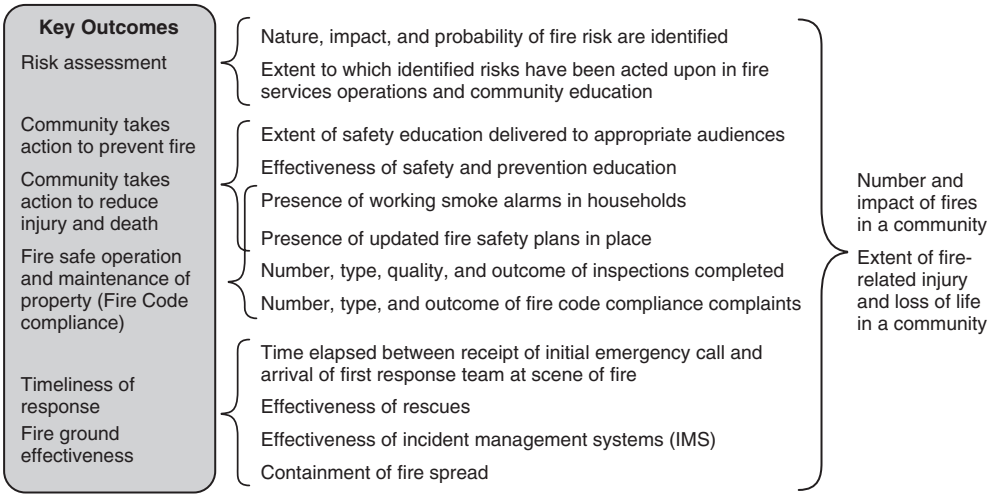

FIGURE C.1(d) Key Performance Indicators. *(Source: Ontario Fire Marshal's Office.)*

(3) Operational outcomes include the following:
   (a) Ensure cardiac output
   (b) Ensure oxygen delivery to tissues and cells
   (c) Ensure blood pressure needed to meet oxygen delivery and flow demands of the patient
   (d) Protect central nervous system and spinal cord
   (e) Treat pain and emotional distress

(4) Outputs are the following service deliverables:
   (a) Deliver emergency patient care
   (b) Ensure delivery of patient to appropriate receiving hospital
   (c) Assist community in personal alert device (PAD) development
   (d) Develop community emergency response team (CERT)

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(e) Provide home safety inspection to identify all hazard risks
(f) Provide immunizations to neighborhood residents
(g) Perform preventive procedures (conduct blood pressure checks, run glucose checks for diabetics, educate children regarding signs/symptoms of heart attacks and strokes)
(h) Train and equip personnel

(5) Fire Department measurements include the following:
(a) Fire delivered medical services
(b) Standards and enforcement
(c) Education and prevention
(d) Medical care delivery

Annex D Informational References

D.1 Referenced Publications. The following documents or portions thereof are referenced within this standard for informational purposes only and are thus not part of the requirements of this document unless also listed in Chapter 2.

D.1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 1, *Uniform Fire Code*™, 2003 edition.

NFPA 551, *Guide for the Evaluation of Fire Risk Assessments*, 2004 edition.

NFPA 901, *Standard Classifications for Incident Reporting and Fire Protection Data*, 2001 edition.

NFPA 1250, *Recommended Practice in Emergency Service Organization Risk Management*, 2004 edition.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, 2002 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System*, 2002 edition.

NFPA 1600, *Standard on Disaster/Emergency Management and Business Continuity Programs*, 2004 edition.

NFPA 1620, *Recommended Practice for Pre-Incident Planning*, 2003 edition.

NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2004 edition.

D.1.2 Other Publications.

D.1.2.1 FEMA Publication. Federal Emergency Management Agency, Washington, DC 20002.

National Fire Incident Reporting System (NFIRS).

D.1.2.2 Ontario Fire Marshal's Office Publications. Ontario Fire Marshal's Office, 5775 Yonge Street, 7th Floor, Toronto, Ontario M2M 4J1, Canada.

"Performance Measurement and Benchmarking Project."

"Shaping the Future of Fire Ground Staffing and Delivery Systems within a Comprehensive Fire Safety Effectiveness Model."

D.1.2.3 U.S. Government Publications. U.S. Government Printing Office, Washington, DC 20402.

Title 29, Code of Federal Regulations, Part 1910, Section 120(q)(3), March 6, 1989.

Title 29, Code of Federal Regulations, Part 1910, Section 134, "Respiratory Protection Regulations," January 8, 1998.

D.2 Informational References. The following documents or portions thereof are listed here as informational resources only. They are not a part of the requirements of this document.

RHAVE. A program developed for community risk management and assessment. It is available from the U.S. Fire Administration, 16825 S. Seton Ave., Emmitsburg, MD 21727.

D.3 References for Extracts. The following documents are listed here to provide reference information, including title and edition, for extracts given throughout the nonmandatory sections of this standard as indicated by a reference in brackets [ ] following a section or paragraph. These documents are not a part of the requirements of this document unless also listed in Chapter 2 for other reasons.

NFPA 402, *Guide for Aircraft Rescue and Fire Fighting Operations*, 2002 edition.

NFPA 472, *Standard for Professional Competence of Responders to Hazardous Materials Incidents*, 2002 edition.

NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, 2003 edition.

NFPA 1081, *Standard for Industrial Fire Brigade Member Professional Qualifications*, 2001 edition.

NFPA 1142, *Standard on Water Supplies for Suburban and Rural Fire Fighting*, 2001 edition.

NFPA 1201, *Standard for Providing Emergency Services to the Public*, 2004 edition.

NFPA 1410, *Standard on Training for Initial Emergency Scene Operations*, 2000 edition.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, 2002 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System*, 2002 edition.

NFPA 1581, *Standard on Fire Department Infection Control Program*, 2000 edition.

NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2004 edition.

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Sequence of Events Leading to Publication of an NFPA Committee Document

Call goes out for proposals to amend existing document or for recommendations on new document.

▼

Committee meets to act on proposals, to develop its own proposals, and to prepare its report.

▼

Committee votes on proposals by letter ballot. If two-thirds approve, report goes forward. Lacking two-thirds approval, report returns to committee.

▼

Report — *Report on Proposals* (ROP) — is published for public review and comment.

▼

Committee meets to act on each public comment received.

▼

Committee votes on comments by letter ballot. If two-thirds approve, supplementary report goes forward. Lacking two-thirds approval, supplementary report returns to committee.

▼

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▼

NFPA membership meets (Annual or Fall Meeting) and acts on committee report (ROP or ROC).

▼

Committee votes on any amendments to report approved at NFPA Annual or Fall Meeting.

▼

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▼

Standards Council decides, based on all evidence, whether or not to issue standard or to take other action, including upholding any appeals.

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The following classifications apply to Technical Committee members and represent their principal interest in the activity of the committee.

M *Manufacturer:* A representative of a maker or marketer of a product, assembly, or system, or portion thereof, that is affected by the standard.

U *User:* A representative of an entity that is subject to the provisions of the standard or that voluntarily uses the standard.

I/M *Installer/Maintainer:* A representative of an entity that is in the business of installing or maintaining a product, assembly, or system affected by the standard.

L *Labor:* A labor representative or employee concerned with safety in the workplace.

R/T *Applied Research/Testing Laboratory:* A representative of an independent testing laboratory or independent applied research organization that promulgates and/or enforces standards.

E *Enforcing Authority:* A representative of an agency or an organization that promulgates and/or enforces standards.

I *Insurance:* A representative of an insurance company, broker, agent, bureau, or inspection agency.

C *Consumer:* A person who is, or represents, the ultimate purchaser of a product, system, or service affected by the standard, but who is not included in the *User* classification.

SE *Special Expert:* A person not representing any of the previous classifications, but who has a special expertise in the scope of the standard or portion thereof.

NOTES:

1. "Standard" connotes code, standard, recommended practice, or guide.
2. A representative includes an employee.
3. While these classifications will be used by the Standards Council to achieve a balance for Technical Committees, the Standards Council may determine that new classifications of members or unique interests need representation in order to foster the best possible committee deliberations on any project. In this connection, the Standards Council may make such appointments as it seems appropriate in the public interest, such as the classification of "Utilities" in the National Electrical Code Committee.
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Company _____
Address 9 Seattle St. **City** Seattle **State** WA **Zip** 02255
Please indicate organization represented (if any) Fire Marshals Assn. of North America

1. **a) NFPA Document Title** National Fire Alarm Code
   b) NFPA No. & Edition NFPA 72, 2002 ed. **c) Section/Paragraph** 4.4.7.1.1
2. **Proposal Recommends:** *(check one)* ☐ **new text** ☐ **revised text** ☒ **deleted text**
3. **Proposal.** *(Include proposed new or revised wording, or identification of wording to be deleted.)* Note: Proposed text should be in legislative format, that is, use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~). Delete exception.
4. **Statement of Problem and Substantiation for Proposal.** Note: State the problem that will be resolved by your recommendation. Give the specific reason for your proposal including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication. A properly installed and maintained system should be free of ground faults. The occurrence of one or more ground faults should be required to cause a "trouble" signal because it indicates a condition that could contribute to future malfunction of the system. Ground fault protection has been widely available on these systems for years and its cost is negligible. Requiring it on all systems will promote better installations, maintenance and reliability.
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