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

2010 Edition

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

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

2010 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. It was issued by the Standards Council on May 26, 2009, with an effective date of June 15, 2009, and supersedes all previous editions.

This edition of NFPA 1720 was approved as an American National Standard on June 15, 2009.

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 a 2004 edition of the standard. The Committee reviewed and revised the first edition of NFPA 1720. Existing definitions were cleaned up and new definitions added where needed to assist users of the standard. A new section on community risk management was added as was an annex titled "Risk Management Model." New sections were also added on "reporting requirements" and "initial attack." Annex material that included extracted figures from NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems,* was added to assist users in determining if calls for service were being properly handled.

This edition of NFPA 1720 standardizes and refines terminology and definitions used in the document. Table 4.3.2 has been editorially revised to make it more understandable and the requirement that the fire department have the capability to initiate an attack within 2 minutes of having necessary resources at the scene in remote areas was moved from the footnotes to a new paragraph and made applicable to all operations. Introductory material for Table 4.3.2 was modified to indicate the requirements apply to a structure fire in a typical 2000 ft^2 (186 m^2), two-story single family dwelling without basement and with no exposures. Text was added in the annex to assist users in calculating the percentage of times they meet the objective.

A new section on sustained fire-fighting operations was added and several sections were revised and reorganized to present the requirements in a more logical order.

The annex material that discusses the requirements in NFPA 1221 was expanded and the two figures extracted from NFPA 1221 updated. Annex B was extensively revised to make it more concise by removing ambiguous text and figures. Annex C was deleted in its entirety.

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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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 extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex C. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. 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 C.

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 volunteer and combination 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 pre-incident 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 and combination 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.

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

1.3.2 The standard is a benchmark for a common response and a platform for developing the appropriate plans for deployment of resources for fires in higher hazard occupancies or more complex incidents.

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, provided technical documentation is 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 Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents,* 2008 edition.

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems,* 2010 edition.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program,* 2007 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System,* 2008 edition.

2.3 Other Publications.

2.3.1 FEMA Publications. Federal Emergency Management Agency, 500 C Street SW, Washington, D.C. 20472

National Incident Management System, March 1, 2004, available at http://www.fema.gov/pdf/emergency/nims/nims_doc_full.pdf.

National Response Framework, January 2008, available at http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf.

2.3.2 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Mandatory Sections.

NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents,* 2008 edition.

NFPA 1142, *Standard on Water Supplies for Suburban and Rural Fire Fighting,* 2007 edition.

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems,* 2010 edition.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program,* 2007 edition.

NFPA 1521, *Standard for Fire Department Safety Officer,* 2008 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,* 2010 edition.

NFPA 1901, *Standard for Automotive Fire Apparatus,* 2009 edition.

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 defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary,* 11th edition, shall be the source for the ordinarily accepted meaning.

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 Advanced Life Support (ALS). See 3.3.27.1.

3.3.2 Aid.

3.3.2.1* *Automatic Aid.* A plan developed between two or more fire departments for immediate joint response on first alarms. [**1142,** 2007]

3.3.2.2 *Mutual Aid.* Reciprocal assistance by emergency services under a written plan among AHJs that is part of communication center's dispatch protocol.

3.3.3* Alarm. A signal or message from a person or device indicating the existence of an emergency or other situation that requires action by an emergency response agency [**1221,** 2010].

3.3.4 Area.

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

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

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

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

3.3.5 Automatic Aid. See 3.3.2.1.

3.3.6 Basic Life Support (BLS). See 3.3.27.2.

3.3.7 Combination Fire Department. See 3.3.15.1.

3.3.8 Company. A group of members assembled at the scene that operate under direct supervision and are trained and equipped to perform assigned tasks.

3.3.9* Company Officer. A supervisor of a crew/company of personnel. [**1710,** 2010]

3.3.10 Crew. See 3.3.39, Team.

3.3.11* Demand Zones. An area used to define or limit the management of a risk situation.

3.3.12 Emergency Incident. Any situation to which an emergency services organization responds in order to deliver emergency services, including rescue, fire suppression, emergency medical service, special operations, law enforcement, and other forms of hazard control and mitigation.

3.3.13 Emergency Medical Service. The treatment of patients using first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other medical procedures prior to arrival at a hospital or other health care facility. *[See also 3.3.27.1, Advanced Life Support (ALS); 3.3.27.2, Basic Life Support (BLS); and 3.3.20, First Responder (EMS).]*

3.3.14 Fire Apparatus. A vehicle designed to be used under emergency conditions to transport personnel and equipment, and to support the suppression of fires and mitigation of other hazardous situations. [**1901,** 2009]

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

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

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

3.3.16 Emergency Operations. See 3.3.30.1.

3.3.17 Fire Department Member. See 3.3.28, Member.

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

3.3.19* Fire Suppression. The activities involved in controlling and extinguishing fires. [**1500,** 2007]

3.3.20* First Responder (EMS). Functional provision of initial assessment (i.e., airway, breathing, and circulatory systems) and basic first-aid intervention, including CPR and automatic external defibrillator (AED) capability. [**1710,** 2010]

3.3.21* Hazard. A condition that presents the potential for harm or damage to people, property, or the environment.

3.3.22 Hazardous Area. The area where members might be exposed to a hazard or hazardous atmosphere. A particular substance, device, event, circumstance, or condition that presents a danger to members of the fire department.

3.3.23 Hazardous Material. A substance that is capable of creating harm to people, the environment, or property due to its toxicity, chemical reactivity, decomposition, or corrosivity; is capable of explosion or detonation; or presents etiological hazards, whether used for its intended purpose or as a weapon of mass destruction (WMD), for illicit lab purposes, environmental crimes, or industrial sabotage.

3.3.24 Incident Commander (IC). The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. [**472,** 2008]

3.3.25* Incident Management System (IMS). An organized system that defines the roles and responsibilities to be assumed by responders and the standard operating procedures to be used in the management and direction of emergency incidents and other functions.

3.3.26 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 are insufficient to control and extinguish the fire, or that the fire is extinguished.

3.3.27 Life Support.

3.3.27.1 ***Advanced Life Support (ALS).*** Emergency medical services beyond basic life support that provide for advanced airway management, including intubation, advanced cardiac monitoring, defibrillation, establishment and maintenance of intravenous access, and drug therapy.

3.3.27.2* ***Basic Life Support (BLS).*** A specific level of prehospital emergency medical service provided by trained responders that is focused on rapidly evaluating a patient's condition; maintaining a patient's airway, breathing, and circulation; controlling external bleeding; preventing shock; and preventing further injury or disability by immobilizing potential spinal or other bone fractures.

3.3.28* Member. A person involved in performing the duties and responsibilities of a fire department, under the auspices of the organization. [**1500,** 2007]

3.3.29 Mutual Aid. See 3.3.2.2.

3.3.30 Operations.

3.3.30.1 ***Emergency Operations.*** Activities of the fire department relating to rescue, fire suppression, emergency medical service, and special operations, including response to the scene of the incident and all functions performed at the scene.

3.3.30.2* ***Special Operations.*** Those emergency incidents to which the fire department responds that require specific and advanced training and specialized tools and equipment. [**1500,** 2007]

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

3.3.32 Remote Area. See 3.3.4.1.

3.3.33 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. [**1500,** 2007]

3.3.34 Rural Area. See 3.3.4.2.

3.3.35 Special Operations. See 3.3.30.2.

3.3.36 Standard Operating Procedure. A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely for the performance of designated operations or actions. [**1521,** 2008]

3.3.37 Structural Fire Fighting. The activities of rescue, fire suppression, and property conservation in buildings or other structures, vehicles, rail cars, marine vessels, aircraft, or like properties. [**1710,** 2010]

3.3.38 Suburban Area. See 3.3.4.3.

3.3.39 Team. Two or more members 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.

3.3.40 Urban Area. See 3.3.4.4.

3.3.41 Volunteer Fire Department. See 3.3.15.2.

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 (AHJ) shall promulgate the fire department's organizational, operational, and deployment procedures by issuing written administrative regulations, standard operating procedures (SOPs), and departmental orders.

4.1.2* 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 objectives for structural fire fighting, based on a low-hazard occupancy such as a 2000 ft^2 (186 m^2), two-story, single-family home without basement and exposures and the percentage accomplishment of those objectives for reporting purposes as required in 4.4.2.

Table 4.3.2 Staffing and Response Time

Demand Zone[a]	Demographics	Minimum Staff to Respond[b]	Response Time (minutes)[c]	Meets Objective (%)
Urban area	>1000 people/mi^2	15	9	90
Suburban area	500–1000 people/mi^2	10	10	80
Rural area	<500 people/mi^2	6	14	80
Remote area	Travel distance ≥ 8 mi	4	Directly dependent on travel distance	90
Special risks	Determined by AHJ	Determined by AHJ based on risk	Determined by AHJ	90

[a] A jurisdiction can have more than one demand zone.
[b] Minimum staffing includes members responding from the AHJs department and automatic aid
[c] Response time begins upon completion of the dispatch notification and ends at the time interval shown in the table.

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

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

4.3.5* 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* Incident Reports. The fire department shall maintain a standardized reporting system that collects specific information on each incident.

4.4.1.1 The incident report shall include the location and nature of the fire or emergency and describe the circumstances of the incident and 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, 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.

4.5 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 Fire-Fighting Operations.

4.6.1 Initial fire-fighting operations shall be organized to ensure that at least four members are assembled before interior fire suppression operations are initiated in a hazardous area.

4.6.2 In the hazardous area, a minimum of two members shall work as a team.

4.6.3* Outside the hazardous area, a minimum of two members shall be present for assistance or rescue of the team operating in the hazardous area.

4.6.3.1 One of the two members assigned outside the hazardous area shall be permitted to be engaged in other activities.

4.6.3.2 The assignment of a member shall not be permitted if abandoning that member's critical task(s) to perform rescue would jeopardize the safety and health of any fire fighter operating at the incident.

4.6.4 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.

4.7 Sustained Fire-Fighting Operations.

4.7.1 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; the deployment of a dedicated rapid intervention crew (RIC); and provision of support activities for those situations that are beyond the capability of the initial attack.

4.7.2 The capability to sustain operations shall include sufficient personnel, equipment, and resources to efficiently, effectively, and safely conduct the appropriate operations.

4.7.3 The fire department shall be permitted to use established automatic aid or mutual aid agreements to comply with the requirements of Section 4.7.

4.8 Intercommunity Organization.

4.8.1* Mutual aid, automatic aid, and fire protection agreements among the affected AHJs shall be in writing and shall address issues such as liabilities for injuries, disabilities, and deaths; cost of service; authorization to respond; staffing; and equipment, including the resources to be made available and the designation of the incident commander.

4.8.2 Procedures and training of personnel for all fire departments in mutual aid, automatic aid, and fire protection agreement plans shall be comprehensive enough to produce an effective force to deal with the emergencies they respond to and to ensure uniform operations at those emergencies.

4.8.3 Companies responding to automatic or mutual aid incidents shall be equipped with communications equipment that allow personnel to communicate with the incident commander, division or group supervisors, or branch directors.

4.9* Emergency Medical Services (EMS).

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

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

4.9.3 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.

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

4.9.5 System Components.

4.9.5.1 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).

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

4.9.6 Quality Management.

4.9.6.1 The fire department shall institute a quality management program.

4.9.6.2 All first responder and BLS emergency medical service provided by the fire department shall be reviewed by the fire department medical personnel and that review process shall be documented.

4.9.6.3 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.

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

4.10* Special Operations.

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

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

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

4.10.4* The fire department shall limit its operations to only those specific special operations functions for which its personnel are trained and are properly equipped.

4.10.5 The fire department shall be permitted to use established automatic aid or mutual aid agreements to comply with the requirements of Section 4.10.

4.10.6 All fire department members who respond to emergency incidents involving hazardous materials shall be trained to the applicable requirements of NFPA 472.

4.10.7 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.

4.10.8 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.

Chapter 5 Systems

5.1 Safety and Health System.

5.1.1* 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.

5.1.2 As a minimum, the fire department shall ensure an AED is available on scene with personnel adequately trained in its use.

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 encountered by the department.

5.2.3 The incident management system shall be consistent with the National Incident Management System (NIMS) and the National Response Framework (NRF).

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 safely execute all operations consistent with the department's organization and deployment as addressed in Chapter 4.

5.4* Communications System.

5.4.1* The fire department shall have a reliable communications system to facilitate prompt delivery of public fire suppression, EMS, 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.

5.5.1* The fire department shall set forth operational requirements to conduct pre-incident planning.

5.5.2 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. The standard sets minimum standards considered necessary for the provision of public fire protection by volunteer and combination fire departments. It addresses the structure and operation of organizations providing such services, including fire suppression, emergency medical services (EMS), 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 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.1.3.1 The authority having jurisdiction (AHJ) generally has the responsibility to determine the following:

(1) Scope and level of service provided by the fire department
(2) Necessary level of funding
(3) Necessary level of personnel and resources, including facilities

In order to provide service, the AHJ 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 Annex B.

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.3.3.2.1 Automatic Aid. Automatic aid is established through a written agreement between AHJs that provides for the simultaneous dispatch of a predetermined response of personnel and equipment to a neighboring jurisdiction upon receipt of an alarm, and is included as part of a communication center's dispatch protocols.

A.3.3.3 Alarm. In some jurisdictions, an alarm is referred to as an incident or call for service.

A.3.3.9 Company Officer. This person could be someone appointed in an acting capacity. The rank structure could be either sergeant, lieutenant, or captain.

A.3.3.11 Demand Zones. 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.3.3.19 Fire Suppression. Fire suppression includes all activities performed at the scene of a fire incident or training exercise that expose fire department members to the dangers of heat, flame, smoke, and other products of combustion, explosion, or structural collapse. [**1500,** 2007]

A.3.3.20 First Responder (EMS). A first responder also assists higher level EMS providers.

A.3.3.21 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.3.3.25 Incident Management System (IMS). The system should be consistent with NIMS and the National Response Framework. The system is also referred to as an incident command system (ICS).

A.3.3.27.2 Basic Life Support (BLS). Basic life support could also include expediting the safe and timely transport of the patient to a hospital emergency department for definitive medical care.

A.3.3.28 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. [**1500,** 2007]

A.3.3.30.2 Special Operations. Special operations include water rescue, extrication, hazardous materials, confined space entry, high-angle rescue, aircraft rescue and fire fighting, and other operations requiring specialized training. [**1500,** 2007]

A.3.3.31 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 at 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.4.1.2 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, EMS, 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 AHJ 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. Legislation or legal restrictions could 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.

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 country-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:

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

For evaluation of response time objectives based on Table 4.3.2, the fire department needs to record the number of members on the scene at the end of the response time given in the table for each incident. For example, in an urban area, the fire department would record the number of members on scene 9 minutes after the completion of the dispatch notification. They would then determine how many times they had at least 15 members on scene within that 9-minute time interval and calculate a percentage based on the total calls in urban areas. To meet the objective defined in this standard for an urban area, they would need to assemble at least 15 members within 9 minutes for 90 percent of the incidents.

A.4.3.4 The AHJ 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. The fire chief's responsibility is to ensure that the best use is made of personnel and equipment. See NFPA 1561 for additional information.

A.4.3.5 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.

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 (SOPs) 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 are 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 SOPs 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 are 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.4.6.3 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.4.8.1 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.

A.4.9 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 or 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.4.9.1 See requirements as outlined in NFPA 1710.

A.4.9.2 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.4.10 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 defines the scope of activities and responsibilities assigned to the fire department and the level of service that is provided in each area.

A.4.10.4 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, the possibility of being called to a situation that was unanticipated or was impossible to predict is significant. 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.5.1.1 NFPA 1500 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. 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.

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.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 varies with the size and nature of the jurisdiction served, the services provided, and other local conditions and preferences.

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 NFPA 1221 covers the time frame from when an alarm is received at a public safety answering point (PSAP) until notification of emergency response units begins. The communications system cannot control the time from the initiation of the event (start of fire, identification of medical problem, etc.) until the emergency is detected and a call is placed to the PSAP or a signal is transmitted from a detection device. Likewise, the fire department cannot initiate a response until the alarm is processed and the appropriate fire department resources are notified. NFPA 1221 requires that 95 percent of alarms received on emergency lines be answered within 15 seconds, and 99 percent of alarms be answered within 40 seconds. It also requires that emergency alarm processing be completed within 60 seconds 90 percent of the time and emergency alarm processing be completed within 90 seconds 99 percent of the time. See Figure A.5.4.1(a). Where alarms are transferred from the primary PSAP to a secondary answering point or communications center, the transfer procedure must not exceed 30 seconds for 95 percent of all alarms processed. See Figure A.5.4.1(b).

A.5.5.1 Fire departments, when conducting prefire planning, should use NFPA 1620 for fires and other related emergencies.

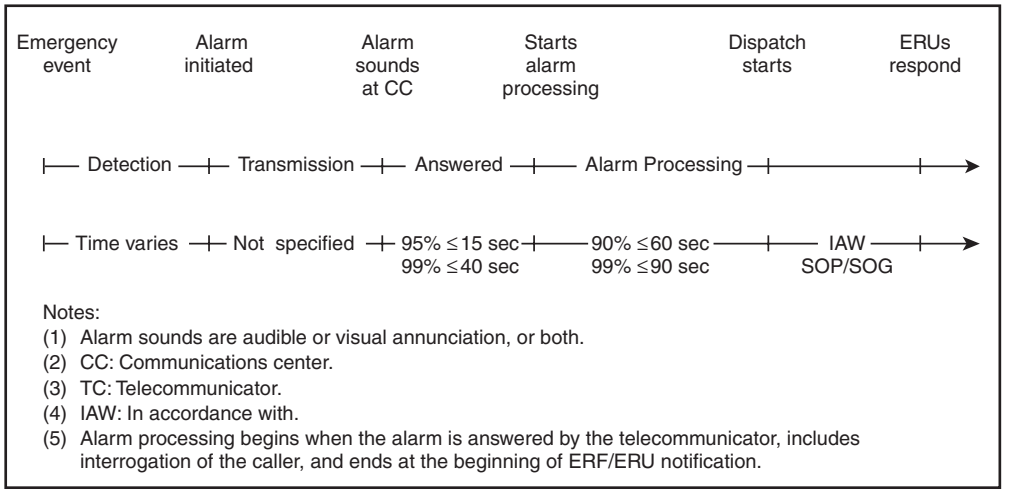

FIGURE A.5.4.1(a) Alarm Time Line Where Primary PSAP Is Communications Center. [1221:Figure A.7.4.1(a)]

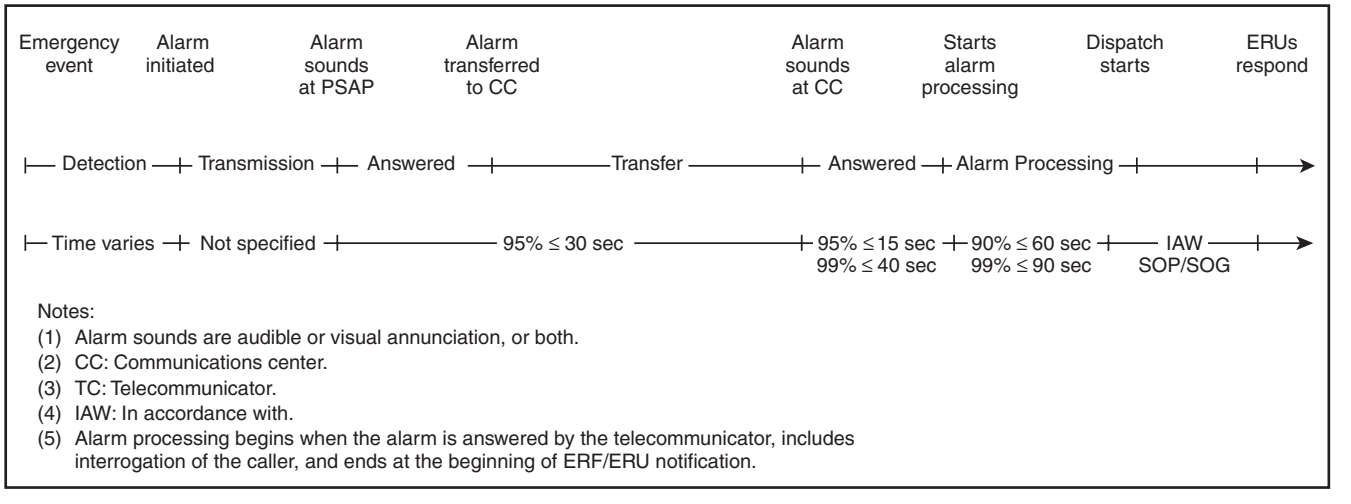

FIGURE A.5.4.1(b) Alarm Time Line Where Primary PSAP Is Other Than Communications Center. [1221:Figure A.7.4.1(b)]

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 community-wide 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, the realization is that this is 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 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.1.3.1 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.1.3.2 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.

B.1.3.3 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.1.3.4 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.1.4 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.1.4.1 Structures that are 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.1.4.2 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.1.4.3 Pre-established goals for each structure define the commitment of resources in order to limit risk to occupants, the structure, and fire department personnel.

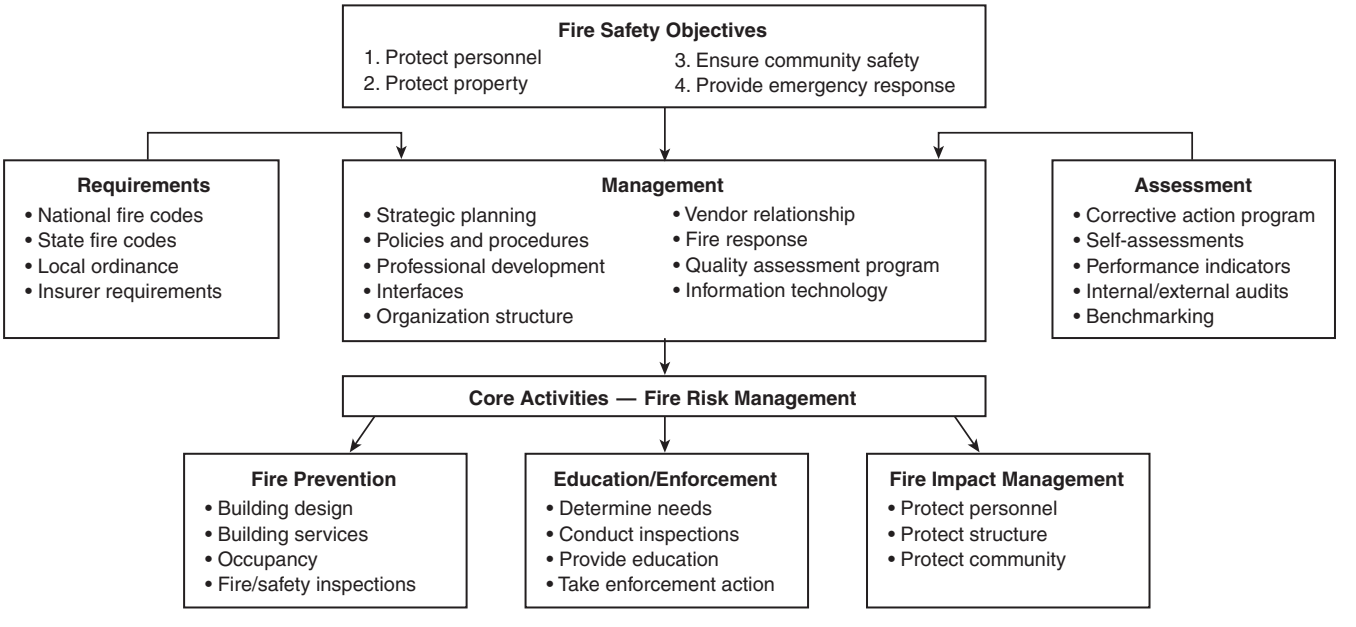

FIGURE B.1 Fire Department Process Map.

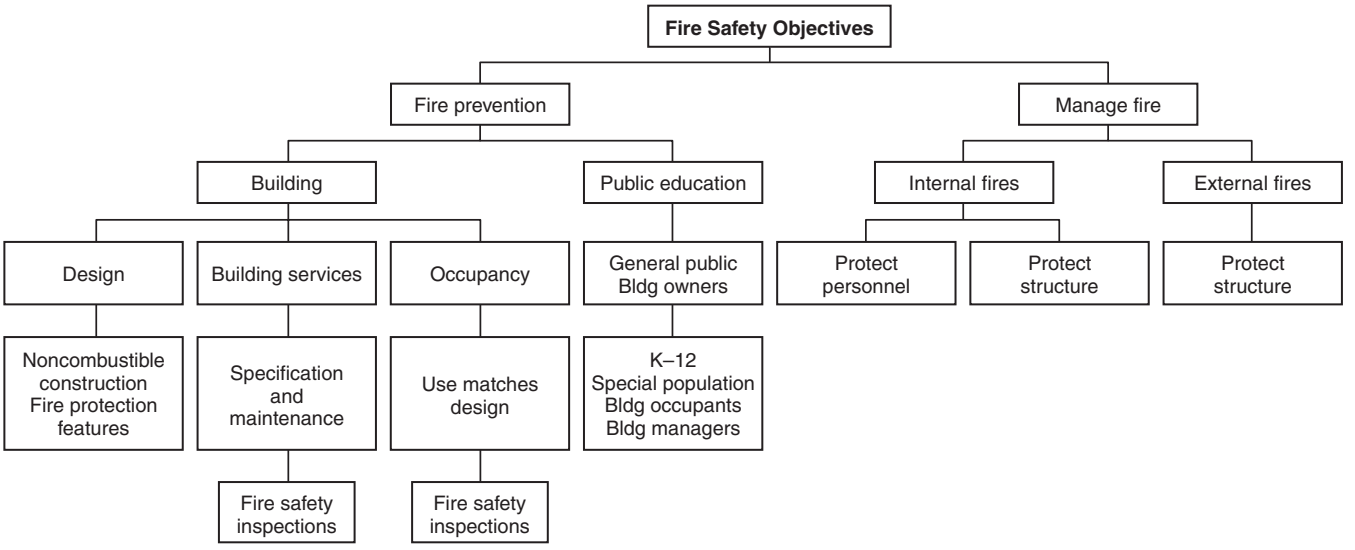

FIGURE B.1.2 Fire Safety Concepts for Fire Department Operations.

Annex C Informational References

C.1 Referenced Publications. The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

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

NFPA 1, *Fire Code*, 2009 edition.

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, 2010 edition.

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

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, 2007 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System*, 2008 edition.

NFPA 1600®, *Standard on Disaster/Emergency Management and Business Continuity Programs*, 2007 edition.

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

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