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NFPA 1500 Fire Department Occupational Safety and Health Program 1987 Edition

National Fire Protection Association Batterymarch Park, Quincy, MA 02269

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Policy Adopted by NFPA Board of Directors on December 3, 1982

The Board of Directors reaffirms that the National Fire Protection Association recognizes that the toxicity of the products of combustion is an important factor in the loss of life from fire. NFPA has dealt with that subject in its technical committee documents for many years.

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

Statement on NFPA Procedures

This material has been developed under the published procedures of the National Fire Protection Association, which are designed to assure the appointment of technically competent Committees having balanced representation. While these procedures assure the highest degree of care, neither the National Fire Protection Association, its members, nor those participating in its activities accepts any liability resulting from compliance or noncompliance with the provisions given herein, for any restrictions imposed on materials or processes, or for the completeness of the text.

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NATIONAL FIRE PROTECTION ASSOCIATION

NFPA 1500

Standard on

Fire Department Occupational Safety and Health Program

1987 Edition

This edition of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, was prepared by the Technical Committee on Fire Service Occupational Safety and Health, and acted on by the National Fire Protection Association, Inc. at its Annual Meeting held May 18-21, 1987 in Cincinnati, Ohio. It was issued by the Standards Council on July 17, 1987, with an effective date of August 7, 1987.

The 1987 edition of this standard has been approved by the American National Standards Institute.

Origin and Development of NFPA 1500

Fire fighting has been recognized as the most hazardous occupation in North America in terms of occupational death and injury statistics. Each year in recent history, over 100 line-of-duty deaths have been recorded among career and volunteer fire fighters in the United States alone. The statistics compiled annually by NFPA on fire service deaths and injuries are more than sufficient evidence to demonstrate the need for increased efforts to reduce this toll.

In addition to the direct line-of-duty deaths, there is growing concern with the number of fire fighters who suffer disabling injuries or develop occupational diseases and conditions that often have debilitating or fatal consequences and force them to discontinue their fire service activities. The link between respiratory and heart diseases and fire service careers has been well documented and established. There is growing evidence of a similar link to cancer and related diseases, derived from occupational exposure to carcinogens, toxic products of combustion, and hazardous materials.

The fire service is not only involved in fire suppression activities, but has an increasing role in the delivery of emergency medical and rescue services and response to incidents involving hazardous materials. The fire fighter may be exposed to a wide range of dangers arising from these activities that present an even more complex set of occupational health and safety concerns. There is a growing concern, as well, with the aspects of fire department activities and functions that are directly related to stress and the emotional and psychological consequences of providing emergency services.

Prior to this document, there was no consensus standard for an occupational safety and health program for the fire service. Fire service organizations are increasingly subject to regulations that were developed for general industry and do not provide for many of the specific needs and concerns of an organization involved in the delivery of emergency services. Depending on governmental authority and legislative actions, a fire service organization may or may not be subject to mandatory occupational health and safety requirements.

The intent of this standard is to provide the framework for a safety and health program for a fire department or any type of organization providing similar services.

The use of the term "member" throughout to refer to an individual who engages in any of the activities subject to the standard, and the generic use of the term "fire department" to refer to any organization engaging in activities of a similar nature is

intended to support the applicability of this standard to career, volunteer, mixed career and volunteer, part-time, private, military, and public sector organizations of any type that engage in the activities normally associated with a fire department. Certain provisions would only apply to those members who may be engaged in specified activities, but the overall applicability of the standard would encompass anyone who operates under the auspices of the organization.

This standard is meant to be appropriate for voluntary compliance, as a state-of-the-art document, whether or not it is adopted as a mandatory requirement by an authority having regulatory jurisdiction over a particular organization. It was the intent of the Technical Committee to produce a document that would meet or exceed any existing mandatory or voluntary compliance standards addressing any aspect of fire fighter safety and health.

The standard is intended to be an umbrella document, establishing the basic framework for a comprehensive safety and health program, and providing for its implementation and management. A series of companion documents, each providing more specific details on various aspects and components of fire service occupational safety and health, are planned to further support this umbrella document.

The Technical Committee on Fire Service Occupational Safety and Health began work on this document in November, 1983 and had several meetings in different parts of the country. This first edition was completed in April, 1986 for the 1987 Annual Meeting cycle, and was voted on by the Association on 20 May 1987 at the Cincinnati, Ohio Annual Meeting.

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This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.

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

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Fire Department Occupational Safety and Health Program

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

Information on referenced publications can be found in Chapter 10.

Chapter 1 Administration

1-1 Scope.

1-1.1 This standard contains minimum requirements for a fire service related occupational safety and health program.

1-1.2 These requirements are applicable to organizations providing fire suppression, rescue, and other emergency services, including public, military, and private fire departments and fire brigades.

1-2 Purpose.

1-2.1 The purpose of this standard is to specify the minimum requirements for an occupational safety and health program for a fire department or fire brigade, and safety procedures for those individuals involved in fire suppression, rescue, and related activities.

1-2.2 Many of the performance objectives of this standard may be achieved in a variety of ways. The achievement of these objectives is intended to help prevent accidents, injuries, and exposures, and to reduce the severity of those accidents, injuries, and exposures that do occur. They will also help to prevent exposure to hazardous materials and contagious diseases and reduce the probability of occupational fatalities, illnesses, and disabilities affecting fire service personnel.

1-2.3 Nothing herein is intended to restrict any jurisdiction from exceeding these minimum requirements.

1-3 Implementation.

1-3.1* When this standard is adopted by a jurisdiction, the authority having jurisdiction shall set a date or dates to achieve compliance with the requirements of this standard and may establish a phase-in schedule for compliance with specific requirements of this standard.

1-3.2 The fire department shall adopt a written plan for compliance with this standard.

1-4 Definitions.

Aerial Device. Any device that is extendable, articulating, or both, designed to position personnel and handle materials.

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

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

Basic Life Support. Emergency medical treatment at a level authorized to be performed by emergency medical technicians as defined by the medical authority having jurisdiction.

Contaminant. A harmful, irritating, or nuisance material foreign to the normal atmosphere.

Debilitating Illness or Injury. A condition that temporarily or permanently prevents a member of the fire department from engaging in normal duties and activities as a result of illness or injury.

Emergency Operations. Activities of the fire department relating to emergency incidents, including response to the scene of the incident and all functions performed at the scene.

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

Fire Brigade. A group of people organized to engage in fire suppression and related activities.

Fire Chief. The highest ranking officer in charge of a fire department or fire brigade.

Fire Department. An organization providing rescue, fire suppression, and related activities. For the purposes of this standard, the term "fire department" shall include any public, private, or military organization engaging in this type of activity.

Fire Department Facility. Any building or area owned, operated, occupied, or used by a fire department on a routine basis. This does not include locations where a fire department may be summoned to perform emergency operations or other duties, unless such premises are normally under the control of the fire department.

Fire Department Member. (See "Member.")

Fire Suppression. The activities involved in controlling and extinguishing fires. For the purposes of this standard, fire suppression shall include 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, or other products of combustion, explosion, or structural collapse.

Fire Department Vehicles. Any vehicle operated by a fire department, including fire apparatus.

Fully Enclosed Area. A cab or passenger compartment of fire apparatus providing total enclosure with

positive latching doors provided for entry and exit.

Hazardous Area. The immediate area where members might be exposed to a special hazard.

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

Hazardous Material. A substance that presents an unusual danger to persons due to properties of toxicity, chemical reactivity or decomposition, corrosivity, explosion or detonation, etiological hazards, or similar properties.

Health Data Base. A compilation of records and data relating to the health experience of a group of individuals, maintained in a manner such that it is retrievable for study and analysis over a period of time.

Health Promotion. Preventive health activities that identify real and potential health risks in the workplace, and that inform, motivate, and otherwise help people to adopt and maintain healthy practices and lifestyles.

Imminent Hazard. An act or condition that is judged to present a danger to persons or property that is so urgent and severe that it requires immediate corrective or preventive action.

Incident Command System. An organized system of roles, responsibilities, and standard operating procedures used to manage and direct emergency operations.

May. This term is used to state a permissive use or an alternative method to a specified requirement.

Member. A person involved in performing the duties and responsibilities of a fire department, under the auspices of the organization. For the purposes of this standard, a fire department member may be a full-time or part-time employee, a paid or unpaid volunteer, may occupy any position or rank within the fire department, and may or may not engage in emergency operations.

Member Assistance Program (MAP). A generic term used to describe the various methods used in the workplace for the control of alcohol and other substance abuse, stress, and personal problems that adversely affect job performance.

Member Organization. An organization formed to represent the collective and individual rights and interests of the members of the fire department, such as a labor union or fire fighters association. For the purposes of this standard, this definition includes any organization authorized to represent the interests of its members in dealing with the fire department management.

Occupational Illness. An illness or disease contracted through or aggravated by the performance of the duties, responsibilities, and functions of a fire department member.

Occupational Injury. An injury sustained during the performance of the duties, responsibilities, and functions of a fire department member.

Officer in Command. A member of the fire department assigned to direct emergency operations or manage the activities of a group of members.

Oxygen Deficient Atmosphere. An atmosphere in which the concentration of oxygen is less than that required to sustain unimpaired physical and mental activity.

Related Activities. For the purposes of this standard, related activities include any and all functions that fire department members may be called upon to perform in the performance of their duties.

Rescue Incident. An emergency incident that primarily involves the rescue of persons subject to physical danger and may include the provision of emergency medical services.

Service Testing. The regular, periodic inspection and testing of apparatus and equipment, according to an established schedule and procedure, to ensure that it is in safe and functional operating condition.

Shall. Indicates a mandatory requirement.

Should. This term, as used in the appendix, indicates a recommendation or that which is advised but not required.

Special Hazard. A particular substance, device, event, circumstance, or condition that presents an unusual and severe danger to members of the fire department or an abnormally high level of fire danger.

Standard Operating Procedure. An organizational directive that establishes a standard course of action.

Structural Fire Fighting. The activities of rescuing, fire suppression, and property conservation involving buildings, enclosed structures, vehicles, vessels, or like properties that are involved in a fire or emergency situation.

Chapter 2 Organization

2-1 Fire Department Organizational Statement.

2-1.1* The fire department shall prepare and maintain a written statement or policy that establishes the existence of the fire department; the basic organizational structure; the expected number of fire department members; the type of functions that the fire department is expected to perform; and the type, amount, and frequency of training to be provided to fire department members.

2-1.2 The organizational statement shall be available for inspection by members or their designated representatives.

2-2 Policy.

2-2.1* The Fire Department shall adopt an official written departmental occupational safety and health policy that identifies specific goals and objectives for the prevention and elimination of accidents and occupational injuries, illnesses, and fatalities. It shall be the policy of the fire department to seek and to provide an occupational health and safety program for its members that complies with this standard.

2-3 Roles and Responsibilities.

2-3.1 It shall be responsibility of the fire department to provide a safe, healthy work environment for its members. The fire department shall research, develop, implement, and enforce an occupational safety and health program that recognizes and reduces the inherent risks involved in the operations of a fire department.

2-3.1.1 The fire department shall be responsible for compliance with all applicable laws and legal requirements with respect to member safety and health.

2-3.1.2* The fire department shall establish and enforce rules, regulations, and standard operating procedures to reach the objectives of this standard.

2-3.2 Each individual member of the fire department shall cooperate, participate, and comply with the provisions of the occupational safety and health program.

2-3.2.1* It shall be the right of each member to be protected by an effective occupational safety and health program and to participate or be represented in the research, development, implementation, and enforcement of the program.

2-3.3 The member organization, when such an organization exists, shall cooperate with the fire department by representing the interests and the welfare of the members in the research, development, and implementation of the occupational safety and health program.

2-3.3.1 The member organization shall have the right to represent the individual and collective rights of its members in the occupational safety and health program.

2-4 Fire Department Safety Officer.

2-4.1 The fire chief shall appoint a designated fire department safety officer. This position shall comply with the requirements of NFPA 1501, *Standard for Fire Department Safety Officer*.

2-4.2 The fire department safety officer shall be responsible for the management of the occupational safety and health program.

2-4.3 The fire chief shall assign or make available such additional personnel and resources as may be required to fulfill the requirements of the occupational safety and health program.

2-5 Occupational Safety and Health Committee.

2-5.1* An Occupational Safety and Health Committee shall be established and shall serve in an advisory capacity to the fire chief. The committee shall include representatives of fire department management, and individual members or representatives of member organizations, and may include other persons. Representatives of member organizations shall be selected by their respective organizations, but other committee members shall be appointed to the safety committee by the fire chief.

2-5.2 The purpose of this committee shall be to conduct research, develop recommendations, and study and review matters pertaining to occupational safety and health within the fire department.

2-5.3* The committee shall hold regularly scheduled meetings and may hold special meetings whenever necessary. Regular meetings shall be held at least once in every six months. Written minutes of each meeting shall be retained and shall be made available to all members.

2-6 Records.

2-6.1* The fire department shall establish a data collection system and maintain permanent records of all accidents, injuries, illnesses, or deaths that are or might be job related.

2-6.2 The data collection system shall also maintain individual records of any occupational exposure to known or suspected toxic products or contagious diseases.

2-6.3 The fire department shall maintain a confidential health record for each member and a health data base as specified in Section 8-2 of this standard.

2-6.4* The fire department shall maintain training records for each member indicating dates, subjects covered, and certifications achieved.

2-6.5 The fire department shall maintain inspection, maintenance, repair, and service records for all vehicles and equipment used for emergency operations.

Chapter 3 Training and Education

3-1 General Requirements.

3-1.1 The fire department shall establish and maintain a training and education program with a goal of preventing occupational accidents, deaths, injuries, and illnesses.

3-1.2 The training and education provided to members shall address all of the applicable provisions of this standard.

3-1.3 The fire department shall provide training and education for all fire department members commensurate with the duties and functions that they are expected to perform.

3-1.4 The fire department shall provide training and education for all members to ensure that they are able to perform their assigned duties in a safe manner that does not present a hazard to themselves or to other members.

3-1.5* All training and education shall be provided by individuals who are qualified to provide instruction in the subjects covered.

3-1.6 Fire department training officers shall meet the qualifications specified in NFPA 1041, *Standard for Fire Service Instructor Professional Qualifications.*

3-2 Training Frequency.

3-2.1 Training shall be provided for all members as often as necessary to meet the requirements of Sections 3-1 and 3-2 of this chapter, but not less than twice each year.

3-2.2 Whenever changes in procedures or technology are introduced or new hazards are identified in the work environment, appropriate training and education shall be provided for all affected members.

3-3 Basic Training and Education Requirements.

3-3.1* Members shall be provided with training and education appropriate for their duties and responsibilities before being permitted to engage in emergency operations.

3-3.2* All members who engage in structural fire fighting shall meet the minimum requirements of Fire Fighter I as specified in NFPA 1001, *Standard for Fire Fighter Professional Qualifications.*

3-3.3 All fire apparatus drivers/operators shall meet the minimum requirements specified in NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications.*

3-3.4 All members who are primarily assigned to aircraft rescue and fire fighting shall meet the minimum requirements specified in NFPA 1003, *Standard for Airport Fire Fighter Professional Qualifications.*

3-3.5 All fire officers shall meet the minimum requirements for at least Fire Officer I as specified in NFPA 1021, *Standard for Fire Officer Professional Qualifications.*

3-3.6 All members who may be involved in emergency operations shall be trained in the incident command system, as specified in 6-1.2 of this standard.

3-3.7 The training program for all members engaged in fire ground operations shall include procedures to be followed to provide for their safe exit from the dangerous area in the event of equipment failure or sudden changes in fire conditions.

3-4 Training for Structural Fire Fighting.

3-4.1 Members engaged in structural fire fighting shall participate in training at least monthly.

3-4.2 Training in fire ground operations shall be based on standard operating procedures. These procedures shall be maintained in written form and shall address all emergency scene operations.

3-4.3 Training exercises shall be conducted in accordance with the established fire ground operating procedures and shall be supervised by qualified instructors.

3-4.4 When training involves live fire fighting exercises, these shall be conducted in compliance with NFPA 1403, *Standard on Live Fire Training Evolutions in Structures.*

3-4.5* Smoke generating devices that produce a hazardous atmosphere shall not be used in training exercises.

3-5 Special Hazards.

3-5.1 Specialized training and education shall be provided to members regarding special hazards to which they may be exposed during fires and other emergencies.

3-5.2 The fire department shall develop written procedures that describe the actions to be taken in situations involving special hazards and shall include these in the training and education program.

Chapter 4 Vehicles and Equipment

4-1 General.

4-1.1 The fire department shall consider health and safety as primary concerns in the specification, design, construction, acquisition, operation, maintenance, inspection, and repair of all vehicles and equipment.

4-2 Drivers/Operators of Fire Department Vehicles.

4-2.1 Fire department vehicles shall be operated only by members who are trained and certified in their proper operation. Driver/operators of fire apparatus shall meet the requirements specified in 3-3.3 of this standard.

4-2.2* Drivers of fire department vehicles shall have valid driver's licenses for the type of vehicle. Vehicles shall be operated in compliance with all traffic laws, including sections pertaining to emergency vehicles, as applicable.

4-2.3* Drivers of fire department vehicles shall be directly responsible for safe and prudent operation under all conditions. When the driver is under the direct supervision of an officer, that officer shall also assume responsibility for the actions of the driver.

4-2.4 Drivers shall not move fire department vehicles until all persons on the vehicle are seated and secured with seat belts or safety harnesses in approved riding positions.

4-3 Persons Riding on Fire Apparatus.

4-3.1 All persons riding on fire apparatus shall be seated and secured to the vehicle by seat belts or safety harnesses at any time the vehicle is in motion. Riding on tailsteps or in any other exposed positions shall be specifically prohibited. Standing while riding shall be specifically prohibited.

4-3.2* Helmets and eye protection shall be provided for

and used by persons riding in cabs or tiller seats that are not enclosed.

4-3.3* All new fire apparatus shall be specified and ordered with a sufficient number of seats in an enclosed area as specified by NFPA 1901, *Standard for Automotive Fire Apparatus*, for the maximum number of persons who may ride on the vehicle at any time.

4-4 Inspection, Maintenance, and Repair of Vehicles.

4-4.1* All fire department vehicles shall be inspected at least weekly and within 24 hours after any use or repair to identify and correct unsafe conditions. A preventive maintenance program shall be established and records shall be maintained as specified in 2-6.4 of this standard. Maintenance, inspections, and repairs shall be performed in accordance with manufacturers' instructions.

4-4.2 Any fire department vehicle found to be unsafe shall be placed out of service until repaired. After being repaired, the vehicle shall be inspected prior to being placed back in service.

4-4.3 Fire pumps on apparatus shall be service tested in accordance with the frequency and procedures specified in NFPA 1911, *Standard on Acceptance and Service Tests of Fire Department Pumping Apparatus.*

4-4.4* All aerial devices shall be inspected and service tested in accordance with the frequency and procedures specified in NFPA 1904, *Standard for Testing Fire Department Aerial Ladders and Elevating Platforms.*

4-5 Portable Equipment.

4-5.1* All equipment carried on fire apparatus or designated for training shall be visually inspected at least weekly and within 24 hours after any use. Inventory records shall be maintained for the equipment carried on each vehicle. Records shall also be maintained for equipment designated for training.

4-5.2 All equipment carried on fire apparatus or designated for training shall be tested at least annually in accordance with manufacturers' instructions and applicable standards.

4-5.3 Fire fighting equipment found to be defective or in unservicable condition shall be removed from service and repaired or replaced.

4-5.4 All ground ladders shall be inspected and service tested as specified in NFPA 1932, *Standard on Use, Maintenance, and Service Testing of Fire Department Ground Ladders.*

4-5.5 All fire hose shall be inspected and service tested as specified in NFPA 1962, *Standard on Care, Maintenance, and Use of Fire Hose Including Connections and Nozzles.*

4-5.6 All fire extinguishers shall be inspected and tested as specified in NFPA 10, *Standard for Portable Fire Extinguishers.*

4-5.7 The hearing conservation objectives of 5-8.3 of this standard shall be taken into account in the acquisition of new power tools and equipment.

Chapter 5 Protective Clothing and Protective Equipment

5-1 General.

5-1.1* The fire department shall provide each member with the appropriate protective clothing and protective equipment to provide protection from the hazards of the work environment to which the member is or may be exposed. Such protective clothing and protective equipment shall be suitable for the tasks that the member is expected to perform in that environment.

5-1.2 Protective clothing and protective equipment shall be used whenever the member is exposed or potentially exposed to the hazards for which it is provided.

5-1.3 Members shall be fully trained in the care, use, inspection, maintenance, and limitations of the protective clothing and protective equipment assigned to them or available for their use.

5-1.4 Protective clothing and protective equipment shall be used and maintained in accordance with manufacturers' instructions. A maintenance and inspection program shall be established for protective clothing and protective equipment. Specific responsibilities shall be assigned for inspection and maintenance.

5-2 Protective Clothing for Structural Fire Fighting.

5-2.1* All members who may be engaged in or exposed to the hazards of structural fire fighting shall be provided with both protective coats and protective trousers that meet the requirements of NFPA 1971, *Standard on Protective Clothing for Structural Fire Fighting.* An overlap of not less than 8 in. (203 mm) of protective coat and protective trouser shall be required.

5-2.2 All members who may be engaged in or exposed to the hazards of structural fire fighting shall be provided with helmets that meet the requirements of NFPA 1972, *Standard on Helmets for Structural Fire Fighting.*

5-2.3 All members who may be engaged in or exposed to the hazards of structural fire fighting shall be provided with gloves that meet the requirements of NFPA 1973, *Standard on Gloves for Structural Fire Fighters.*

5-2.3.1 Fire departments that provide protective coats with protective resilient wristlets secured through a thumb opening may provide gloves of the gauntlet type for use with these protective coats. Fire departments that do not provide such wristlets attached to all protective coats shall provide gloves of the wristlet type for use with these protective coats.

5-2.4 All members who may be engaged in or exposed to the hazards of structural fire fighting shall be provided

with footwear that meet the requirements of NFPA 1974, *Standard on Protective Footwear for Structural Fire Fighting*.

5-2.5* All members who may be engaged in or exposed to the hazards of structural fire fighting shall be provided with approved protective hoods or a combination of ear flaps and collar that provide protection for the ears and neck and interface with the SCBA facepiece, protective coat, and helmet.

5-2.6 The fire department shall require all members to wear all the protective clothing specified in 5-2.1, 5-2.2, 5-2.3, 5-2.4, and 5-2.5 of this section at all times when involved in or exposed to the hazards of structural fire fighting.

5-2.7* When station/work uniforms are worn by members who may be engaged in or exposed to the hazards of structural fire fighting, such station/work uniforms shall meet the requirements of NFPA 1975, *Standard on Station/Work Uniforms for Fire Fighters*.

5-3 Self-Contained Breathing Apparatus (SCBA).

5-3.1* SCBA shall be provided for and shall be used by all personnel working in areas where:

(a) the atmosphere is hazardous,

(b) the atmosphere is suspected of being hazardous,

(c) the atmosphere may rapidly become hazardous.

In addition to the above, all personnel working below ground level or inside any confined space shall be provided with SCBA and shall use that SCBA unless the safety of the atmosphere can be established by testing and continuous monitoring.

5-3.2* SCBA of the open-circuit design shall be positive pressure and shall meet the requirements of NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire Fighters*. Closed-circuit type SCBA shall be NIOSH/MSHA approved with a minimum service duration of 30 minutes and shall operate in the positive pressure mode only.

5-3.3 The fire department shall adopt and maintain a respiratory protection program that meets the requirements of ANSI Z88.5, *Practices for Respiratory Protection for the Fire Service*, and ANSI Z88.6, *Standard for Respiratory Protection — Respirator Use - Physical Qualifications for Personnel*.

5-3.4 Compressed gaseous breathing air in the SCBA cylinder shall meet the requirements of the Compressed Gas Association G-7.1, *Commodity Specification for Air*, with a minimum air quality of Grade D, as well as meeting a water vapor level of less than 25 ppm.

5-3.4.1 Sources of a compressed gaseous breathing air, such as compressors, cascade systems, storage receivers, etc., used for filling SCBA cylinders shall be tested at least every three months to assure their compliance with 5-3.4 of this section.

5-3.4.2 SCBA cylinders shall be emptied per the instructions of the manufacturer if not utilized within a three-month period.

5-3.4.3 SCBA cylinders shall be hydrostatically tested within the periods specified by the manufacturers and the applicable governmental agencies.

5-3.5 All SCBA shall be inspected, used, and maintained as specified in ANSI Z88.5, *Practices for Respiratory Protection for the Fire Service*.

5-3.6* All members using SCBA shall be medically certified by a physician on an annual basis, and shall be regularly trained, tested, and certified in the safe and proper use of this equipment. When this evaluation is conducted by a physician other than the fire department physician, the evaluation shall be subject to the review and approval of the fire department physician.

5-3.7 Members using SCBA shall operate in teams of two or more who are in communication with each other through visual, audible, physical, safety guide rope, electronic or other means to coordinate their activities, and are in close promixity to each other to provide assistance in case of an emergency.

5-3.8* When members are involved in operations that require the use of SCBA or other respiratory protective equipment, at least one member shall be assigned to remain outside the area where respiratory protection is required. This member shall be responsible for maintaining a constant awareness of the number and identity of personnel using SCBA, their location and function, and time of entry. Members with SCBA shall be available for rescue.

5-3.9* The facepiece seal capability of each member qualified to use SCBA shall be verified by qualitative fit testing on an annual basis and any time that new types of SCBA are issued. Each new member shall be tested before being permitted to use SCBA in a hazardous atmosphere. Only members with a properly fitting facepiece shall be permitted by the fire department to function in a hazardous atmosphere with self-contained breathing apparatus.

5-3.10* Beards or facial hair that interfere with the facepiece seal shall be prohibited for members required to use SCBA. If eyeglasses are worn, the member shall use frames that do not pass through the seal area of the facepiece.

5-4 Personal Alert Safety System (PASS).

5-4.1* Each member involved in rescue, fire fighting, or other hazardous duties shall be provided with and shall use a PASS device. Each PASS device shall be tested at least weekly and prior to each use, and shall be maintained in accordance with the manufacturers' instructions.

5-4.2 All PASS devices used by fire departments shall meet the requirements of NFPA 1982, *Standard on Personal Alert Safety Systems (PASS) for Fire Fighters*.

5-5* Life Safety Ropes, Harnesses, and Hardware.

5-5.1 All life safety ropes, harnesses, and hardware used by fire departments shall meet the requirements of NFPA 1983, *Standard on Fire Service Life Safety Rope, Harnesses, and Hardware.*

5-5.1.1 Class I life safety harnesses shall only be used for fire fighter attachment to ladders and aerial devices.

5-5.1.2 Class II and Class III life safety harnesses shall be utilized for fall arrest and rappeling operations.

5-5.2 Rope used to support the weight of members or other persons during rescue, fire fighting, other emergency operations, or during training evolutions shall be life safety rope. Life safety rope used for any other purpose shall be removed from service and destroyed.

5-5.3 Life safety rope used for rescue at fires or other emergency incidents shall be previously unused and shall be destroyed after such use.

5-5.4 Life safety rope used for training evolutions shall be designated as training rope and may be reused if inspected before and after each such use in accordance with the manufacturers instructions. Training ropes shall be destroyed if subjected to impact loading, or if signs of weakness or wear are detected. Records shall be maintained to record the use of each life safety rope used for training.

5-6 New and Existing Protective Clothing and Protective Equipment.

5-6.1 All new protective clothing and protective equipment shall meet the current edition, as specified in Chapter 10 of this standard, of the respective standards specified in Section 5-2, and in 5-3.2, 5-4.2, and 5-5 of this chapter.

5-6.2 Existing protective clothing and protective equipment shall have met the edition of the respective NFPA standard that was current when the protective clothing or protective equipment was purchased.

5-7 Eye and Face Protection.

5-7.1* Face and eye protection shall be provided for and used by members engaged in fire suppression and other operations involving hazards to the eyes and face at all times when the face is not protected by the full facepiece of self-contained breathing apparatus.

5-8 Hearing Protection.

5-8.1* Hearing protection shall be provided for and used by all members operating or riding on fire apparatus when subject to noise in excess of 90 dBA.

5-8.2* Hearing protection shall be provided for and used by all members when exposed to noise in excess of 90 dBA from power tools or equipment, except in situations where the use of such protective equipment would create an additional hazard to the user.

5-8.3* The fire department shall engage in a hearing conservation program to identify and reduce or eliminate potentially harmful sources of noise in the work environment. Where audiometric testing indicates a significant hearing loss for a member, the fire department shall address these conditions on an individual basis, as well as take steps to control potentially harmful noise exposure to any or all other members.

Chapter 6 Emergency Operations

6-1 Organization.

6-1.1 Emergency operations and other situations that present similar hazards, including training exercises, shall be conducted in a manner to recognize hazards and to prevent accidents and injuries.

6-1.2 An incident command system shall be established with written procedures applying to all members involved in emergency operations. All members involved in emergency operations shall be familiar with the system.

6-1.3 The incident command system shall identify roles and responsibilities relating to the safety of operations. Safety responsibilities shall be assigned to supervisory personnel at each level of the organization.

6-1.4* The officer in command of an emergency incident shall be responsible for the overall safety of all members and all activities occurring at the scene.

6-1.5 The officer in command of an emergency incident shall establish an organization with sufficient supervisory personnel to control the position and function of all members operating at the scene and to ensure that safety requirements are satisfied.

6-1.6* A standard system shall be used to identify and account for the assignment of each member at the scene of an incident.

6-1.7* At incidents or situations where special hazards exist, the officer in command shall assign qualified personnel with specific responsibility to identify and evaluate hazards and to provide direction with respect to the safety of operations.

6-2 Incident Safety Requirements.

6-2.1* The fire department shall provide an adequate number of personnel to safely conduct emergency scene operations. Operations shall be limited to those that can be safely performed by the personnel available at the scene.

6-2.2 When unexperienced members are working at an incident, direct supervision shall be provided by more experienced officers or members. This requirement shall not reduce the training requirements contained in Chapter 3 of this standard.

6-2.3 When members are operating at an emergency incident and their assignment places them in potential conflict with motor vehicle traffic, they shall wear

helmets as specified in 5-2.2 of this standard, and a garment with flourescent retroreflective material.

6-3 Incidents Involving Special Hazards.

6-3.1 When members are operating in hazardous areas, they shall work in teams of two or more. There shall be at least one member specifically assigned to remain outside the hazardous area and maintain an awareness of the operations inside the hazardous area.

6-3.2 Whenever members are operating in positions or performing functions that include special hazards or that would subject them to immediate danger of injury in the event of equipment failure or other sudden event, back-up personnel shall be standing by with equipment to provide assistance or rescue.

6-3.3* When members are operating in positions or performing functions that involve an immediate risk of injury, qualified basic life support personnel shall be standing by with medical equipment and transportation capability.

Chapter 7 Facility Safety

7-1 Safety Standards.

7-1.1* All fire department facilities shall comply with all legally applicable health, safety, building, and fire code requirements.

7-1.2* All sleeping areas in fire stations shall be separated from vehicle storage areas by at least one hour fire resistive assemblies and shall be protected by smoke detectors.

7-1.3 Fire stations shall be designed and provided with provisions to ventilate exhaust emissions from fire apparatus to prevent exposure to fire fighters contamination of living and sleeping areas.

7-2 Inspections.

7-2.1 All fire department facilities shall be inspected at least annually to provide for compliance with Section 7-1 of this chapter. Inspections shall be documented and recorded.

7-2.2 All fire department facilities shall be inspected at least monthly to identify and cause correction of any health or safety hazards.

7-3 Maintenance and Repairs.

7-3.1 The fire department shall have an established system to maintain all facilities, and to cause prompt correction of any health or safety hazards or code violations.

Chapter 8 Medical

8-1 General.

8-1.1 Prior to becoming members, individuals shall be examined and certified by a physician as being medically and physically fit. Members who will be certified for fire suppression activities shall meet the medical requirements specified in Chapter 2 of NFPA 1001, *Standard for Fire Fighter Professional Qualifications*. Examinations for all other members shall take into account the risks and the functions associated with the individual's duties and responsibilities.

8-1.2* All members engaged in emergency operations shall be re-examined by the physician on at least an annual basis and before being reassigned to emergency duties after debilitating illnesses or injuries. Members who have not satisfied these requirements of the examination shall not be permitted to engage in emergency operations. When these examinations are conducted by a physician other than the fire department physician, the examination report shall be subject to the review and approval of the fire department physician.

8-1.3 The fire department shall establish a physical fitness program, as specified in Section 8-5 of this chapter, for members to maintain a level of fitness in order to safely perform their assigned functions. Members who do not satisfy the required levels of fitness shall not be permitted to engage in emergency activities.

8-2 Health Data Base.

8-2.1* The fire department shall establish and maintain a permanent health file on each individual member that records the results of regular medical and fitness tests; any occupational illnesses or injuries; and any events that expose the individual to known or suspected hazardous materials, toxic products, or contagious diseases.

8-2.2* Health information shall be maintained as a confidential record for each individual member as well as a composite data base for the analysis of factors pertaining to the overall health and fitness of the member group.

8-2.3* If a member dies as a result of occupational injury or illness, autopsy results, if available, shall be recorded in the health data base.

8-3 Contagious Diseases.

8-3.1* The fire department shall actively attempt to identify and limit the exposure of members to contagious diseases in the performance of their assigned duties. When appropriate, innoculations, vaccinations, and other treatment shall be made available.

8-4 Fire Department Physician.

8-4.1 The fire department shall have an officially designated physician who shall be responsible for guiding, directing, and advising the members with regard to their health, fitness, and suitability for various duties.

8-4.2 The fire department physician shall provide medical guidance in the management of the occupational safety and health program.

8-4.3* The fire department physician shall be a licensed medical doctor qualified to provide professional expertise in the areas of occupational safety and health as they relate to emergency services.

8-4.4* The fire department physician shall be readily available for consultation and to provide professional services on an urgent basis. This may be accomplished by providing access to a number of qualified physicians.

8-5 Physical Fitness Program.

8-5.1* The fire department shall provide and require the structured participation of all members in a program to develop and maintain appropriate levels of physical fitness. The maintenance of these levels of fitness shall be based on fitness standards determined by the fire department physician that reflect the individual's assigned functions and activities, and that are intended to reduce the probability and severity of occupational injuries and illnesses.

8-5.2 Members who are unable to meet the fitness standards shall enter a rehabilitation program to facilitate progress in attaining a level of fitness commensurate with the individual's assigned functions and activities.

8-5.3 The physical fitness program shall be under the medical supervision of the fire department physician.

8-6 Rehabilitation.

8-6.1* It shall be an ongoing objective of the fire department to assist members affected by occupational injuries or illnesses in their rehabilitation and to facilitate their return to full active duty or limited duty where possible. In all cases, the fire department shall have an ultimate concern for the members' ability to regain and maintain a comfortable, healthy, and productive life during and after their service with the fire department.

Chapter 9 Member Assistance Program

9-1 General.

9-1.1* The fire department shall provide a member assistance program that identifies and assists members with substance abuse, stress, and personal problems adversely affecting job performance. The assistance program shall refer those members to appropriate health care services for the purpose of restoring job performance to expected levels, as well as the restoration of health to a better condition. The Member Assistance Program shall be available to all members and their families.

9-1.2* The fire department shall adopt a written policy statement on alcoholism, substance abuse, and other problems covered by the Member Assistance Program.

9-1.3* Written rules shall be established specifying how records are to be maintained, the policies governing retention and access to records, and the procedure for release of information. These rules shall identify to whom and under what conditions information may be released, and what use, if any, may be made of records for purposes of research, program evaluation, and reports. Member records maintained by a Member Assistance Program shall not become part of a member's personnel file.

9-1.4* The Member Assistance Program shall provide health promotion activities that identify physical and mental health risk factors and shall provide education and counseling for the purpose of preventing health problems and enhancing overall well-being.

Chapter 10 Referenced Publications

10-1 The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document. The edition indicated for each reference shall be the current edition as of the date of the NFPA issuance of this document.

10-1.1 NFPA Publications. National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

NFPA 10, *Standard for Portable Fire Extinguishers,* 1984

NFPA 1001, *Standard on Fire Fighter Professional Qualifications,* 1987

NFPA 1002, *Standard on Fire Apparatus Driver/Operator Professional Qualifications,* 1982

NFPA 1003, *Standard on Airport Fire Fighter Professional Qualifications,* 1987

NFPA 1021, *Standard on Fire Officer Professional Qualifications,* 1987

NFPA 1041, *Standard on Fire Service Instructor Professional Qualifications,* 1987

NFPA 1403, *Standard on Live Fire Training Evolutions in Structures, 1986*

NFPA 1501, *Standard for Fire Department Safety Officer,* 1987

NFPA 1904, *Standard for Testing Fire Department Aerial Ladders and Elevating Platforms,* 1980

NFPA 1911, *Standard on Acceptance and Service Tests of Fire Department Pumping Apparatus,* 1987

NFPA 1932, *Standard on Use, Maintenance, and Service Testing of Fire Department Ground Ladders,* 1984

NFPA 1962, *Standard for the Care, Use, and Maintenance of Fire Hose Including Connections and Nozzles,* 1979

NFPA 1971, *Standard on Protective Clothing for Structural Fire Fighting,* 1986

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

NFPA 1973, *Standard on Gloves for Structural Fire Fighters,* 1983

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

NFPA 1975, *Standard on Station/Work Uniforms for Fire Fighters,* 1985

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

NFPA 1982, *Standard on Personal Alert Safety Systems (PASS) for Fire Fighters,* 1983

NFPA 1983, *Standard on Fire Service Life Safety Rope, Harnesses, and Hardware,* 1985

10-1.2 ANSI Publications. American National Standards Institute, 1430 Broadway, New York, NY 10018.

ANSI Z88.5, *Practices for Respiratory Protection for the Fire Service,* 1981

ANSI Z88.6, *Standard for Respiratory Protection — Respirator Use — Physical Qualifications for Personnel,* 1984

10-1.3 U.S. Government Publication. U.S. Government Printing Office, Superintendent of Documents, Washington, DC 20402.

Title 29, Code of Federal Regulations, Part 1910.133, (29 CFR 1910.133) July 1, 1985.

Appendix A

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

A-1-3.1 The specific determination of the authority having jurisdiction depends on the mechanism under which this standard is adopted and enforced. When the standard is adopted voluntarily by a particular fire department for its own use, the authority having jurisdiction should be the fire chief or the political entity that is responsible for the operation of the fire department. When the standard is legally adopted and enforced by a body having regulatory authority over a fire department such as federal, state, or local government, or political subdivision, this body is responsible for making those determinations as the authority having jurisdiction.

A-1-4 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 or procedures, equipment or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization concerned with product evaluations which is in a position to determine compliance with appropriate standards for the current production of listed items.

A-1-4 Authority Having Jurisdiction.

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

A-2-1.1 For guidance in the organization of a fire department, NFPA 1201, *Recommendations for the Organization for Fire Services,* and NFPA 1202, *Recommendations for Organization of a Fire Department,* should be consulted.

A-2-2.1 Example of a safety policy statement: It is the policy of the fire department to provide and to operate with the highest possible levels of safety and health for all members. The prevention and reduction of accidents, injuries, and occupational illnesses are goals of the fire department and shall be primary considerations at all times. This concern for safety and health applies to all members of the fire department and to any other persons who may be involved in fire department activities.

A-2-3.1.2 The responsibility for establishing and enforcing safety rules and regulations rests with the management of the fire department. Enforcement implies that appropriate action, including disciplinary measures, will be taken to ensure compliance. A standard approach to enforcement should address both sanctions and rewards. All fire department members should recognize and support the need for a standard regulatory approach to safety and health. In addition to the management responsibilities, an effective safety program requires commitment and support from all members and member organizations.

A-2-3.2.1 See A-2-3.1.2.

A-2-5.1 One of the most important provisions for improving the safety and health of the fire service is through an official organizational structure that has the support of the members and the fire department management. Without official recognition and support, safety and health committees might be ineffective showpieces, lack authority, or be dominated by particular interests. To avoid such situations, it is recommended that a safety and health committee be composed of equal numbers of fire department management representatives and member representatives. Specific areas of responsibilities of the joint safety and health committee should be outlined in detail through written procedures or contractual negotiation.

A-2-5.3 The requirement for one regularly scheduled meeting every six months is meant to be a minimum. Committee meetings should be held as often as necessary

to deal with the issues confronting the group. The written minutes of each meeting should be distributed and posted in a conspicuous place in each fire station so that all members may be aware of issues under discussion and actions that have been taken.

A-2-6.1 The data collection system for accidents, injuries, illnesses, exposures, and deaths should provide both incident-specific information for future reference and information that can be processed in studies of morbidity, mortality, and causation. The use of standard coding as provided by NFPA 901, *Standard for Uniform Coding for Fire Protection*, will allow compatibility with national and regional reporting systems.

A-2-6.4 See NFPA 1401, *Recommended Practice for Fire Protection Training Reports and Records*, for further information and guidance.

A-3-1.5 A particular training class or session might be conducted by an individual who has special expertise or abilities in the subject area, whether or not the instructor is a member of the fire department or a qualified fire service instructor.

A-3-3.1 Members who have not met the specific qualifications listed in 3-3.2 through 3-3.5 should not perform the listed duties in actual emergency incidents. These members might, however, be utilized under structured supervision to perform functions for which they have been trained.

A-3-3.2 In order to ensure compliance with the minimum requirements of NFPA 1001, *Standard on Fire Fighter Professional Qualifications*, fire department training programs should be certified through a recognized accreditation system. Members who have not completed the training requirements for Fire Fighter I should not participate in interior structural fire fighting, but might perform other support functions at emergency incidents.

A-3-4.5 Several accidents have occurred when smoke bombs or other smoke generating devices that produce a toxic atmosphere have been used for training exercises. When training exercises are intended to simulate emergency conditions, smoke generating devices that do not create a hazard are required.

A-4-2.2 When members respond to incidents or to the fire station in their own vehicles, the operation of these vehicles is governed by all applicable traffic laws and codes as enacted by the authority having jurisdiction. The fire department should enact specific rules and regulations pertaining to the use of private vehicles for emergency response. These rules and regulations should be at least equal to the provisions regulating the operation of fire department vehicles.

A-4-2.3 The driver of any vehicle has legal responsibility for its safe and prudent operation at all times. While the driver is responsible for the operation of the vehicle, the officer is responsible for the actions of the driver.

A-4-3.2 Helmets and eye protection (goggles, safety glasses, or face shield) should be worn by all members riding in positions that do not provide the protection of an enclosed cab. Helmets are also recommended for members riding in enclosed areas where seats are not designed to provide head and neck protection in a collision. Properly designed seats, with head and neck protection, alleviate the need for helmets and, in some cases, helmets would compromise the safety provided by the seats.

A-4-3.3 The minimum requirement for new fire apparatus provides seats in enclosed areas for all members who ride on fire apparatus at any time. It is generally agreed that fully enclosed cabs and passenger compartments provide a higher level of safety in collisions and rollovers, protection from flying objects, noise reduction, and protection from inclement weather and, therefore, fully enclosed cabs are strongly recommended for new apparatus purchases and for renovation of existing apparatus where possible. It is extremely important that all members remain seated and secured in the seats provided at all times when the vehicle is in motion.

A-4-4.1 and A-4-5.1 The content of these paragraphs is to ensure that all vehicles are inspected on a regular basis and checked for the proper operation of all safety features. This inspection should include tires, brakes, warning lights and devices, headlights and clearance lights, windshield wipers, and mirrors. The apparatus should be started and the operation of pumps and other equipment should be verified. Fluid levels should also be checked regularly.

Where apparatus is in regular daily use, these checks should be performed on a daily basis. Apparatus stored in unattended stations that might not be used for extended periods should be checked weekly. Any time such a vehicle is used, it should be checked before being placed back in service. The 24 hour reference provides for situations in which a vehicle may be used within the period preceding a scheduled inspection, although any deficiencies noted in use should be corrected without delay.

The safety equipment carried on fire department vehicles should be inspected in conjunction with the inspection of the vehicle.

A-4-4.4 Nondestructive testing is recommended and should be conducted in addition to the testing required by NFPA 1904, *Standard for Testing Fire Department Aerial Ladders and Elevating Platforms*. The publication "Aerial Device Testing and Certification Program" by the International Association of Fire Fighters provides information on this type of testing.

A-4-5.1 See A-4-4.1.

A-5-1.1 The provision and use of protective clothing and equipment should include safety shoes, gloves, goggles, safety glasses, and any other items appropriate to the members' activities. This applies to all activities members are expected to perform, including nonemergency activities. The applicable regulations pertaining to industrial worker safety should be consulted to determine the need for protective equipment in nonemergency activities.

A-5-2.1 The 1986 Synergistic Project FIRES Ensemble represents state-of-the-art technology for protective clothing. Project FIRES utilizes an "overpant" concept that might alleviate many of complaints encountered by fire departments currently utilizing ¾ boots that are now required to utilize protective trousers as specified in this standard. Project FIRES ensembles can be compliant with NFPA 1971.

A-5-2.5 At the time of adoption of this standard, there was no standard for the design and performance of protective hoods. The authority having jurisdiction should approve the use of protective hoods that meet the performance requirements for Flame Resistance contained in 3-2.1, for Thermal Shrinkage in 3-2.2, and for Heat Resistance in 3-2.3 of NFPA 1971, *Standard on Protective Clothing for Structural Fire Fighting*.

A-5-2.7 The performance requirements specified in NFPA 1975, *Standard for Station/Work Uniforms for Fire Fighters*, are intended to ensure that clothing worn under protective clothing does not contribute to fire fighter injuries or negate the protective qualities of the outer garments. Experience has shown that some fabrics can melt, burn, drip, or transmit heat rapidly, causing thermal burns to the wearer with no visible damage to the outer protective clothing. It is highly recommended that any/all clothing worn under protective clothing for fire fighting should comply with the performance standards specified in NFPA 1975, *Standard on Station/Work Uniforms for Fire Fighters*. Fire fighters should be aware of the characteristics of various types of fabrics and take steps to avoid wearing unsafe clothing when engaging in fire fighting operations.

A-5-3.1 The required use of SCBA means that the user must have the facepiece in place, breathing air from the SCBA only. Wearing an SCBA without the facepiece in place does not satisfy this requirement and should be permitted only under conditions in which the immediate safety of the atmosphere is assured. All members working in proximity to areas where SCBA use is required should have SCBA on their backs or immediately available for donning.

Areas where the atmosphere can rapidly become hazardous could include rooftop areas during ventilation operations and areas where an explosion or container rupture could be anticipated.

A hazardous atmosphere would be suspected in overhaul areas and above the fire floor in a building. Members working in these areas are required to use their SCBA unless the safety of the atmosphere is established by testing and maintained by effective ventilation. With effective ventilation in operation, facepieces could be removed, under direct supervision, but SCBA should continue to be worn or immediately available.

A-5-3.2 The use of long duration SCBA should be restricted to operations in tunnels and underground structures, on board ships, and other situations where the need for this capability is demonstrated.

Several manufacturers of SCBA currently market "buddy" or rescue breathing devices as a component of their SCBA. The use of such a device voids the NIOSH Certification of the SCBA and cannot be recommended at this time.

The National Institute for Occupational Safety and Health (NIOSH) has issued three bulletins concerning emergency escape breathing support systems and they are reprinted here for your information:

July 24, 1984

LETTER TO INTERESTED PERSONS

Subject: Approval of Self-contained Breathing Apparatus Equipped with Emergency Escape Breathing Support System

In accordance with the requirements of Title 30, Code of Federal Regulations, Part 11, (30 CFR 11), the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) presently test and approve open-circuit self-contained breathing apparatus. These apparatus are used regularly by the fire services for respiratory protection during fire fighting and other associated rescue activities. Although the apparatus is designed principally for use by and protection of a single individual at one time, it has been recognized that the apparatus is being used to protect two persons simultaneously, either by sharing of the facepiece, or by adaptation of the apparatus to accept a second facepiece. The latter practice is permitted under the OSHA Fire Brigades Standard (29 CFR 1910.156).

MSHA and NIOSH have been asked by several interested persons to develop new performance requirements which would be applied to combination self-contained breathing apparatus and emergency escape breathing support systems (EEBSS). These requirements would be in addition to the present requirements of Part 11. These new requirements would be distributed to respirator manufacturers as prescribed in Section 11.63(c) of Part 11. This procedure, which has been used before by MSHA and NIOSH, would permit such manufacturers to apply for approval of combination self-contained breathing apparatus and EEBSS which meet the new performance requirements pursuant to MSHA and NIOSH authority within 30 CFR 11.63(c) *in addition to* the present applicable requirements of Part 11. MSHA and NIOSH would issue approvals which indicated that the device had also passed special test requirements in addition to the requirements of 30 CFR 11 Subpart H, following successful conclusion of testing and quality control review.

MSHA and NIOSH are requesting that you consider the potential approval of combination self-contained breathing apparatus and EEBSS and that you provide NIOSH with your comments on the practicability, safety, and need for such a device, recommendations you may have for performance criteria for such devices, and suggestions which MSHA and NIOSH might apply to limita-

tions on and conditions for safe use of such devices.

Signed:

John B. Moran, Director
Division of Safety Research

November 6, 1984

NOTICE TO ALL
RESPIRATOR MANUFACTURERS WITH
MSHA/NIOSH-APPROVED RESPIRATORS

Until NIOSH establishes a formal position based upon our review of the information submitted pursuant to the NIOSH memorandum to Concerned Individuals dated July 24, 1984, titled, "Emergency Escape Breathing Support System" the following policy remains in effect:

The use of any component connected, interfaced, or assembled in combination with MSHA/NIOSH certified self-contained breathing apparatus (SCBA) for use as an emergency escape support breathing system or "Buddy Breather" to allow more than one individual access to the apparatus' life support system(s), either directly or indirectly, automatically voids the applicable certification during its use. Such invalidation continues in effect until the SCBA is returned to the certified status through required maintenance, test checkout, and reassembly as prescribed by the manufacturer's instruction manual and any other applicable user company policy/rules, legislative directives or enforceable regulations applicable to user health and safety.

Respirator manufacturers must not state in advertising or instructional literature that use of such components is approved by MSHA/NIOSH.

Signed:

John B. Moran, Director
Division of Safety Research

July 23, 1985

LETTER TO INTERESTED PERSONS

Subject: Self-contained Breathing Apparatus Equipped with Emergency Escape Breathing Support System

On July 24, 1984, the National Insitutue for Occupational Safety and health sent a letter to interested persons, requesting that they consider the potential approval of combination self-contained breathing apparatus (SCBA) and emergency escape breathing support systems (EEBSS). Also, it was requested that they provide NIOSH with comments on the practicability, safety, and need for recommendations for performance criteria for, limitation on, and conditions for safe use of such devices.

NIOSH has received several written replies to and verbal comments on the subject. It appears, from our evaluation of those replies and comments, that there is, at present, insufficient information on which to base certification of safe and practicable combination SCBA and EEBSS. In addition, there is concern over the legal and oral considerations of use of such devices, which NIOSH is unable to address at this time.

NIOSH understands that Lawrence Livermore National Laboratory (LLNL) is proposing to study the design and use of combination SCBA and EEBSS. NIOSH proposed to work with LLNL and with fire service and other organizations in an effort to resolve the present concerns and needs.

At present, NIOSH will take no action on certification of combination SCBA and EEBSS.

Signed:

John B. Moran, Director
Division of Safety Research

A-5-3.6 The physician certifying members for SCBA use should consult ANZI Z88.6, *Standard for Respiratory Protection — Respirator Use — Physical Qualifications for Personnel,* for guidance on the medical review that is appropriate for each member on an annual basis.

A-5-3.8 During the initial stages of emergency scene operations, the individual assigned to remain outside and to maintain an awareness of the personnel working inside with SCBA could also be responsible for functions such as operating pumps, preparing equipment, or commanding operations. The essential requirement, however, is to have at least one member outside to maintain accountability and to direct help, if needed. As operations progress, this responsibility should shift to individuals assigned to this specific function according to standard operating procedures. The members required to be available for rescue could also be assigned to other functions at the scene of the incident. These members must have SCBA and suitable rescue equipment and be available for reassignment to assist members in trouble.

A-5-3.9 The procedures for qualitative fit testing are included in ANSI Z88.5, *Practices for Respiratory Protection for the Fire Service.* Quantitative fit testing is considered to be more precise than qualitative fit testing, but is not considered to be necessary when positive pressure SCBA are used. If qualitative fit testing does not provide satisfactory results, the fire department should refer to ANSI Z88.5 for further information on quantitative fit testing. If necessary, the fire department should provide a facepiece of larger or smaller size to provide an adequate seal for an individual and such individuals shall use only the facepiece provided.

A-5-3.10 An effective face-to-facepiece seal is extremely important when using SCBA. Even a minor leakage can allow contaminants to enter the facepiece, even with positive pressure SCBA. Any outward leakage will increase the rate of air consumption, reducing the time available for use and safe exit. The facepiece should seal tightly against the skin, without penetration or in-

terference by any protective clothing or other equipment.

A-5-4.1 It is recommended that PASS units be worn on protective clothing and used at any time the member is involved in fire suppression or similar activities, whether or not SCBA is worn.

A-5-5 The purpose of this section is to ensure that life safety rope is used in compliance with the performance criteria under which it is designed, and to limit the use of rope for rescue purposes to life safety rope complying with NFPA 1983, *Standard on Fire Service Life Safety Rope, Harnesses, and Hardware*. NFPA 1983 does not apply to rope used for water rescue. Since there is no approved manner to service test a rope without compromising its strength, the use of new rope for rescue work is required.

Rope is damaged in use by high stresses, particularly those that occur in impact loading situations. Abrasion, kinking, and exposure to chemical and other products can also damage a rope. Actual use of the rope is considered uncontrolled use and, since there is no means to assure its safety for future use, it must be destroyed after such uncontrolled use.

Training ropes are used under controlled conditions in which impact loading and other damaging situations would be observed. Ropes used in this manner should be inspected before and after every use and carefully stored between training sessions. Records should provide a history of each rope, and training ropes should be scheduled for replacement at regular intervals. Any rope that shows signs of damage or wear, or that has been impact loaded should be destroyed immediately.

The destruction of the rope means that it must be removed from service and altered in such a manner that it could not be mistakenly used as a life safety rope. This could include disposal, or removal of labels and cutting into short lengths to be used for utility purposes. (*See NFPA 1983, Standard on Fire Service Life Safety Rope, Harnesses, and Hardware.)*

A-5-7.1 Eye and face protection should comply with 29 CFR 1910.133.

A-5-8.1 The use of personal protective equipment to limit noise exposure should be considered as an interim approach until the noise levels produced by vehicles, warning devices, and radios can be reduced. Protective ear muffs are recommended for fire fighters, due to the difficulties of proper fit and insertion of ear plugs.

Studies in some jurisdictions have indicated that the most harmful noise exposure can come from radios that are turned up loud enough to be heard over the noise of engines and warning devices. Ear muffs are available that provide effective sound attenuation and rapid donning. They should also be provided with built-in speakers and volume controls for radio and intercom communications. Ear muffs should be worn by operators of noisy equipment (in excess of 90 dBA) at the scene of incidents as well as during response. In some jurisdictions, traffic regulations might limit the use of hearing protection by drivers.

The specification for new fire apparatus should provide maximum sound requirements that would allow members to ride in those vehicles without hearing protective devices. A maximum limit of 85 dBA without audible warning devices and 90 dBA with warning devices in operation is recommended. Interior noise levels should be measured with the vehicle in motion at the speed that produces the highest noise level, up to 55 mph. All windows should be closed and the noise level should be measured in each passenger area.

A-5-8.2 When operating in situations where other protective clothing and equipment is necessary, such as in structural fire fighting, the interface between hearing protection and other necessary protection might not be adequately addressed by currently used devices. For example, ear muffs might not interface with helmets and foam plastic ear plugs could be dangerous in a fire environment due to the potential for melting. In addition, a reduction in hearing capability in an emergency operations setting could create additional hazards. Effective hearing protection should also be used during non-emergency activities such as equipment checks and engine warm-ups. Attention should be given to correcting the deficiencies through the advent of improved protective devices and through the use of alternate or improved procedures that create less noise.

A-5-8.3 An effective hearing conservation program should address the regular audiometric testing of members to identify hearing loss, the development and implementation of steps to prevent further hearing loss by members indicating such loss, and the ongoing identification and reduction or elimination of potentially harmful noise sources in the work environment. The standards for hearing conservation included in 29 CFR 1910.95 should be used as a basic minimum approach to this problem.

Any approach to hearing conservation should address personal protective devices, audiometric testing, and the reduction of noise exposure that can be achieved by modifying existing equipment or changing procedures. Examples of modifications would include moving siren speakers and air horns down onto front bumpers, responding with windows closed, and installing sound-attenuating insulation in cabs of fire apparatus. The noise produced by audible warning devices should also be evaluated to determine the most effective balance between warning value and harmful characteristics. Some studies indicate that high-low alternating tone sirens and lower pitch air horns could be more effective warning devices and less damaging to hearing.

A longer-term approach to hearing conservation should deal with the purchase of apparatus and equipment that is less noisy by design, with noise standards included in the specifications. Improved radio equipment that produces higher clarity of sound with less output volume should also be considered.

A-6-1.4 The officer in command has an ultimate responsibility for the safety of all fire department members operating at an incident and for any and all other persons whose safety is affected by fire department operations. In many situations, the officer in command must weigh the

risk to fire department members against the possible results of their actions. There are situations where the risk to fire department members is unacceptable and nonaction is appropriate, such as situations where violent confrontations endanger operations and rescue incidents where there is no possibility of victim survival.

A-6-1.6 A standard system to account for the identity and assignment of each member is relatively simple when all members arrive as assigned crews on fire apparatus. The identity of each crew member should be recorded in a standard manner on the vehicle and each company officer is responsible for those members. The command system should be set up to account for the assignment, position, and function of companies. In fire departments where members arrive in their own vehicles or assemble at the scene, a system must be provided to capture the identity of each member arriving and to organize them into companies or groups with appropriate supervision. This requires a standard system of "reporting in" at the incident and becoming part of the organized system of operations.

A-6-1.7 A safety sector should be established at all major incidents and at any high risk incidents. The safety sector would normally be assigned to operate under the fire department safety officer, or an assigned officer with this responsibility. If the designated safety officer is not available and the need for a safety sector is evident, the officer in command of the incident should assign one or more members to assume this responsibility on a temporary basis. Depending on the specific situation, this assignment could require one or more members. All members should be familiar with the basic duties and responsibilities of a safety sector.

A-6-2.1 The limitation of emergency scene operations to those that can be safely conducted by the number of personnel on the scene is intended to reduce the risk of fire fighter death or injury due to understaffing. While members can be assigned and arrive at the scene of an incident in many different ways, it is strongly recommended that interior fire fighting operations should not be conducted without an adequate number of qualified fire fighters operating in companies under the supervision of company officers.

It is recommended that a minimum acceptable fire company staffing level should be four members responding on or arriving with each engine and each ladder company responding to any type of fire. Companies responding in high fire risk areas should have a minimum acceptable staffing of six fire fighters on ladder companies and five fire fighters on engine companies. These recommendations are based on experience from actual fires and in-depth fire simulations, critically and objectively evaluating fire company effectiveness. These studies indicate significant reductions in performance and safety when crews have fewer members than the above recommendations. Overall, five member crews were found to provide a more coordinated approach for search and rescue and fire suppression tasks.

During actual emergencies, the effectiveness of companies can become critical to the health and safety of fire fighters. Potentially fatal work environments can be created very rapidly in many fire situations. Training and skills of companies can make a difference in the need for additional personnel and in reducing the exposure to safety and health risks to fire fighters when a situation exceeds their capabilities.

A-6-3.3 If advanced life-support personnel are available, this level of service would be preferred. Basic life support should be the minimum acceptable level.

A-7-1.1 Where health, safety, building, and fire codes are not legally applicable to fire department facilities, steps should be taken to ensure that equivalent standards are applied and enforced. In the absence of local requirements, the provisions of NFPA 1, *Fire Prevention Code*; NFPA *101®*, *Life Safety Code*; NFPA 70, *National Electrical Code*, and a model plumbing, mechanical, and building code should be applied. In addition, the workplace safety standards specified in 29 CFR 1910 or an equivalent standard should be applied (*Code of Federal Regulations, Workplace Safety Standards*).

A-7-1.2 The installation of automatic sprinkler systems in all fire stations is strongly recommended. Automatic alarm devices should be connected to smoke detection and sprinkler systems to sound an alarm at a remote location, such as a central communications facility, when stations are unoccupied.

A-8-1.2 The annual medical examination for all members who engage in emergency operations is intended to establish their fitness for the physical requirements of their assignments and to regularly monitor their medical and physical conditions to identify potential problems. This examination should include the basic areas addressed in a routine check-up and should specifically include the following items:

Pulmonary function testing and chest X-ray, if indicated, cardiac evaluation and testing, if indicated;

Blood and urine testing;

Vision testing;

Audiometric testing.

The medical examination should be developed and administered by the fire department physician in recognition of the specific requirements of the members' activities.

Special testing and monitoring programs should be established for members assigned to hazardous materials teams and those who have been exposed to toxic products at past incidents.

A-8-2.1 The health data base for a fire department should include the reports of regular physical examinations, injury and illness reports, and any supporting information that could be useful in tracking, analyzing, or predicting the health effects of various events on individuals or the group.

A-8-2.2 This information should be managed in a manner that respects the confidentiality of doctor-patient

relationships. Electronic data processing is often employed to facilitate management of such a data base.

A-8-2.3 The fire department should try to obtain autopsy or other medical information for all deceased employees or former employees. This information could be useful in establishing relationships between occupational factors and resulting fatalities at some time in the future. Autopsies for fire fatalities should be conducted and recorded according to a standard protocol.

A-8-3.1 When fire department members routinely respond to emergency medical incidents, the fire department should consult with medical professionals and agencies on measures to limit the exposure of members to infectious and contagious diseases. This should include the provision and maintenance of equipment to avoid or limit direct physical contacts with patients, when feasible.

A-8-4.3 A fire department physician should have specific expertise and experience relating to the needs of fire department members and a thorough knowledge of the physical demands involved in emergency operations. If possible, the fire department physician should be a specialist in the field of occupational medicine.

A-8-4.4 Depending on the size and the needs of the fire department, the fire department physician might or might not be a full-time position. The fire department should have a primary relationship with at least one officially designated physician. This physician can serve as the primary medical contact and, in turn, deal with a number of other physicians and specialists. A large fire department can designate more than one fire department physician or might determine that a relationship with a group practice or multiple provider system is more appropriate to its needs. In any case, there should be a capability to consult with a physician who is particularly aware of the medical needs of fire department members and who is available on an immediate basis.

A-8-5.1 For guidance in implementation of a physical fitness program, the NFPA publications, *Fire Fighter Survival* and *Physical Fitness and Public Safety* should be consulted. Physical fitness as it relates to activities and functions for fire fighters should be commensurate with the requirements contained in NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.

A-8-6.1 The member health rehabilitation program should include a post-traumatic incident debriefing and follow-up program to assist members in dealing with the psychological impact of these situations. This function should be most appropriately managed as part of the Member Assistance Program.

A-9-1.1 Although Member Assistance Programs differ from one another in various ways according to the particular needs and resources of individual fire departments, member organizations, and members, there are certain components that are found in all quality programs. The program standards set forth by the Association of Labor-Management Administrators and Consultants on Alcoholism (ALMACA) address these components and are strongly recommended:

The physical location of the Member Assistance Program should facilitate easy access while ensuring confidentiality.

There should be a review of medical and disability benefits to ensure that plans adequately cover appropriate diagnosis and treatment for alcohol, drug, and mental health problems. Where feasible, coverages should include outpatient and day treatment care. The Member Assistance Program staff should be familiar with provision of the medical and disability benefit plans so they can advise clients clearly as to the extent, nature, and cost of the recommended treatment and reimbursement available.

The Member Assistance Program staff should combine two primary qualifications: 1) appropriate managerial and administrative experience, and 2) skills in identifying problems, interviewing, motivating, referring clients, and, where appropriate, in counseling or related fields. Experience and expertise in dealing with alcohol-related problems are strongly recommended.

It is important that members and their families are informed about the Member Assistance Program and the services it offers and are continually updated on its existence, availability, and confidentiality. Information about the Member Assistance Program should be made available to all new members and their families.

The Member Assistance Program should maintain current information about alcoholism treatment services and other resources. These include Alcoholics Anonymous, Al-Anon, Alateen, and other self-help groups; appropriate health care; community services; and other professionals. Information about referral procedures, costs, and other relevant factors should be available. Professionally trained individuals should be immediately available to assist members involved in traumatic incidents to reduce or deal with the effects of psychological stress.

There should be a periodic review of the Member Assistance Program to provide an objective evaluation of operation and performance. There should be an annual review of Member Assistance Program staff performance.

A-9-1.2 The policy statement should acknowledge that alcoholism is a disease responsive to treatment and rehabilitation, and should specify the responsibilities of management, member organizations, and members as they relate to the program. The Member Assistance Program should not in any way alter management authority or responsibilities, or the prerogatives of a member organization. Participation in the Member Assistance Program should not affect future service or career advancement, nor should participation protect the member from disciplinary action for continued substandard job performance or rule infractions. Cosponsorship of the program by management and the member organization is highly desirable.

A-9-1.3 Adherence to federal regulations on confidentiality of alcohol and other drug abuse records (42 CFR) is required of programs receiving federal funds, directly or indirectly.

A-9-1.4 Health promotion should include, but not be limited to, the following activities: career guidance, family orientation, and educational programs on topics such as weight control, healthy heart, hypertension, stress management, nutrition, preventive medicine, substance abuse, smoking cessation, and retirement planning.

Appendix B Referenced Publications

B-1 The following documents or portions thereof are referenced within this document for informational purposes only and thus should not be considered part of the requirements of this document. These references should be the current edition as of the date of NFPA issuance of this document.

B-1-1 NFPA Publications. National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

NFPA 1, *Fire Prevention Code,* 1987
NFPA 70, *National Electrical Code,* 1987
NFPA *101, Life Safety Code,* 1985
NFPA 901, *Uniform Coding for Fire Protection,* 1986
NFPA 1201, *Recommendations for the Organization for Fire Services,* 1984
NFPA 1202, *Recommendations for Organization of a Fire Department,* 1982
NFPA 1401, *Recommended Practice for Fire Protection Training Reports and Records,* 1983.

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Tentative Interim Amendment

NFPA 1500

Fire Department Occupational Safety and Health Program

1987 Edition

Reference: 5-3.4.2
T.I.A. 87-1

Pursuant to Section 15 of the NFPA Regulations Governing Committee Projects, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 1500, *Standard for the Fire Department Occupational Safety and Health Program,* 1987 edition. The TIA was processed by the Committee on Fire Service Occupational Safety and Health and was issued by the Standards Council on April 7, 1989.

A Tentative Interim Amendment is tentative because it has not been processed through the entire standards making procedures. It is interim because it is effective only between editions of the standard. A TIA automatically becomes a Proposal of the proponent for the next edition of the standard; as such, it then is subject to all of the procedures of the standards making process.

1. Delete paragraph 5-3.4.2.

Issue Date: April 1989