

NFPA® 1407

Standard for
Training Fire
Service Rapid
Intervention Crews

2010 Edition



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

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® DOCUMENTS
NOTICE AND DISCLAIMER OF LIABILITY CONCERNING THE USE OF NFPA DOCUMENTS

NFPA® codes, standards, recommended practices, and guides (“NFPA Documents”), of which the document contained herein is one, are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve consensus on fire and other safety issues. While the NFPA administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate, or verify the accuracy of any information or the soundness of any judgments contained in NFPA Documents.

The NFPA disclaims liability for any personal injury, property or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on NFPA Documents. The NFPA also makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

In issuing and making NFPA Documents available, the NFPA is not undertaking to render professional or other services for or on behalf of any person or entity. Nor is the NFPA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

The NFPA has no power, nor does it undertake, to police or enforce compliance with the contents of NFPA Documents. Nor does the NFPA list, certify, test, or inspect products, designs, or installations for compliance with this document. Any certification or other statement of compliance with the requirements of this document shall not be attributable to the NFPA and is solely the responsibility of the certifier or maker of the statement.

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA DOCUMENTS

ADDITIONAL NOTICES AND DISCLAIMERS

Updating of NFPA Documents

Users of NFPA codes, standards, recommended practices, and guides (“NFPA Documents”) should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of Tentative Interim Amendments. An official NFPA Document at any point in time consists of the current edition of the document together with any Tentative Interim Amendments and any Errata then in effect. In order to determine whether a given document is the current edition and whether it has been amended through the issuance of Tentative Interim Amendments or corrected through the issuance of Errata, consult appropriate NFPA publications such as the National Fire Codes® Subscription Service, visit the NFPA website at www.nfpa.org, or contact the NFPA at the address listed below.

Interpretations of NFPA Documents

A statement, written or oral, that is not processed in accordance with Section 6 of the Regulations Governing Committee Projects shall not be considered the official position of NFPA or any of its Committees and shall not be considered to be, nor be relied upon as, a Formal Interpretation.

Patents

The NFPA does not take any position with respect to the validity of any patent rights referenced in, related to, or asserted in connection with an NFPA Document. The users of NFPA Documents bear the sole responsibility for determining the validity of any such patent rights, as well as the risk of infringement of such rights, and the NFPA disclaims liability for the infringement of any patent resulting from the use of or reliance on NFPA Documents.

NFPA adheres to the policy of the American National Standards Institute (ANSI) regarding the inclusion of patents in American National Standards (“the ANSI Patent Policy”), and hereby gives the following notice pursuant to that policy:

NOTICE: The user’s attention is called to the possibility that compliance with an NFPA Document may require use of an invention covered by patent rights. NFPA takes no position as to the validity of any such patent rights or as to whether such patent rights constitute or include essential patent claims under the ANSI Patent Policy. If, in connection with the ANSI Patent Policy, a patent holder has filed a statement of willingness to grant licenses under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, copies of such filed statements can be obtained, on request, from NFPA. For further information, contact the NFPA at the address listed below.

Law and Regulations

Users of NFPA Documents should consult applicable federal, state, and local laws and regulations. NFPA does not, by the publication of its codes, standards, recommended practices, and guides, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

NFPA Documents are copyrighted by the NFPA. They are made available for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of safe practices and methods. By making these documents available for use and adoption by public authorities and private users, the NFPA does not waive any rights in copyright to these documents.

Use of NFPA Documents for regulatory purposes should be accomplished through adoption by reference. The term “adoption by reference” means the citing of title, edition, and publishing information only. Any deletions, additions, and changes desired by the adopting authority should be noted separately in the adopting instrument. In order to assist NFPA in following the uses made of its documents, adopting authorities are requested to notify the NFPA (Attention: Secretary, Standards Council) in writing of such use. For technical assistance and questions concerning adoption of NFPA Documents, contact NFPA at the address below.

For Further Information

All questions or other communications relating to NFPA Documents and all requests for information on NFPA procedures governing its codes and standards development process, including information on the procedures for requesting Formal Interpretations, for proposing Tentative Interim Amendments, and for proposing revisions to NFPA documents during regular revision cycles, should be sent to NFPA headquarters, addressed to the attention of the Secretary, Standards Council, NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02169-7471; email: stds_admin@nfpa.org

For more information about NFPA, visit the NFPA website at www.nfpa.org.

Copyright © 2009 National Fire Protection Association®. All Rights Reserved.

NFPA® 1407

Standard for

Training Fire Service Rapid Intervention Crews

2010 Edition

This edition of NFPA 1407, *Standard for Training Fire Service Rapid Intervention Crews*, was prepared by the Technical Committee on Fire Service Training. It was issued by the Standards Council on October 27, 2009, with an effective date of December 5, 2009.

This edition of NFPA 1407 was approved as an American National Standard on December 5, 2009.

Origin and Development of NFPA 1407

Historically, this document began as the Technical Committee on Fire Service Training recognized an issue faced by many fire departments. In 2001, the first edition of NFPA 1710 was published. Included in it was the term *Initial Rapid Intervention Crew (IRIC)*. As departments struggled to adopt and comply with NFPA 1710, no guidance was provided as to training or performance requirements for these crews.

In a 2003 letter to the NFPA Standards Council requesting approval, the Technical Committee on Fire Service Training explained that although several NFPA standards refer to rapid intervention teams, none “outlines training programs for these teams.” The Committee received approval for a recommended practice on fire fighter safety and survival. The Committee drafted several versions of the document, addressing high angle rescue, confined space rescue, highway safety, and other situations in which a Rapid Intervention Crew (RIC) might find itself. In 2006, the Committee recognized that the basic skills and performance requirements for rapid intervention rescue should remain constant regardless of the emergency situation and that the recommended practice should become a standard for all fire department training programs. The Committee was also concerned that, in several instances, fire fighters on a scene had rushed to the aid of downed fire fighters without consideration of other ongoing fire operations, thus endangering more fire fighters. The Committee then re-focused on the basic skills and training needed for the safe operation of fire department RICs.

The current standard is based on the expertise of the Committee members and other contributors with experience in RIC operations and training. Careful consideration was given to the requirements for IRICs and RICs in NFPA 1710 and NFPA 1720, as well as NFPA 1500. The Committee stresses through the requirements in this document that the safety of all fire fighters is the key issue.

Technical Committee on Fire Service Training

William E. Peterson, *Chair*

Plano, TX [SE]

Rep. International Fire Marshals Association

Roger W. Bassett, R. W. Bassett & Associates, IL [SE]

Theron J. Becker, Polk County Fire Rescue Training Association, MO [U]

John M. Best, John Jay College of Criminal Justice, MD [U]

W. Edward Buchanan, Jr., Hanover Fire & EMS, VA [U]

Rick Egelin, Fireblast 451 Incorporated, CA [M]

William E. Glover, High Temperature Linings (HTL), VA [U]

Larry D. Hughes, North Carolina Department of Insurance, NC [E]

Cortez Lawrence, U.S. Department of Homeland Security, MD [SE]

Roger M. LeBoeuf, Elliott, LeBoeuf & McElwain, VA [SE]

Lavarn E. Lucas, Hilton Head Island Fire & Rescue, SC [E]

F. Patrick Marlatt, Maryland Fire and Rescue Institute, MD [E]

Denis M. Murphy, Nassau County Fire Service Academy, NY [U]

John Mike Myers, Las Vegas Fire Rescue, NV [E]

James E. Podolske, Jr., U.S. Air Force, FL [U]

Kenneth W. Richards, Jr., Old Mystic Fire Department, CT [E]

Daniel N. Rossos, Portland Fire & Rescue, OR [E]

Daniel D. Shaw, Fairfax County Fire and Rescue Department, MD [U]

Gary A. Simpson, E. D. Bullard Company, KY [M]

Frederick M. Stowell, Fire Protection Publications, OK [M]

Rep. International Fire Service Training Association

Richard Verlinda, Seattle Fire Department, WA [E]

Phil Welch, Gastonia Fire Department, NC [U]

Steven J. Williamson, Kidde Fire Trainers, Inc., NJ [M]

Michael L. Young, Volunteer Firemen's Insurance Services, Inc., PA [I]

Alternates

George F. Hall, International Fire Associates Consulting, LLC, FL [U]

(Alt. to J. E. Podolske, Jr.)

John W. Hoglund, Maryland Fire & Rescue Institute, MD [E]

(Alt. to F. P. Marlatt)

William F. Jenaway, Volunteer Firemen's Insurance Services, Inc., PA [I]

(Alt. to M. L. Young)

John R. Lapsansky, Fireblast 451 Inc., CA [M]

(Alt. to R. Egelin)

Steven C. Luftig, Kidde Fire Trainers, Inc., NJ [M]

(Alt. to S. J. Williamson)

Daniel Madrzykowski, U.S. National Institute of Standards & Technology, MD [RT]

(Alt. to NIST Rep.)

Denis G. Onieal, U.S. Department of Homeland Security, MD [SE]

(Alt. to C. Lawrence)

Michael A. Wieder, Fire Protection Publications, OK [M]

(Alt. to F. M. Stowell)

Nonvoting

Edward W. Bent, Sacramento, CA

(Member Emeritus)

James C. Smalley, NFPA Staff Liaison

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

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

Committee Scope: This Committee shall have primary responsibility for all fire service training techniques, operations, and procedures to develop maximum efficiency and proper utilization of available personnel. Such activities can include training guides for fire prevention, fire suppression, and other missions for which the fire service has responsibility.

Contents

Chapter 1 Administration	1407- 4	7.3 Rotation of RIC Personnel	1407- 6
1.1 Scope	1407- 4	7.4 Rapid Intervention Skills	1407- 6
1.2 Purpose	1407- 4	7.5 Declaring a Fire Fighter Emergency	1407- 6
1.3 Equivalency	1407- 4	7.6 Search Techniques	1407- 6
Chapter 2 Referenced Publications	1407- 4	7.7 Access and Extrication	1407- 6
2.1 General	1407- 4	7.8 Air Supply	1407- 6
2.2 NFPA Publications	1407- 4	7.9 SCBAs	1407- 7
2.3 Other Publications	1407- 4	7.10 Ropes, Slings, and Harnesses	1407- 7
2.4 References for Extracts in Mandatory Sections	1407- 4	7.11 Protecting Downed Fire Fighter(s) in Place	1407- 7
Chapter 3 Definitions	1407- 4	7.12 Moving Downed Fire Fighter(s) to Safety	1407- 7
3.1 General	1407- 4	7.13 Fire Fighter Self-Rescue	1407- 7
3.2 NFPA Official Definitions	1407- 4	7.14 Tools and Equipment	1407- 7
3.3 General Definitions	1407- 5	Chapter 8 Required Performance for Rapid Intervention Crews (RIC)	1407- 7
Chapter 4 Rapid Intervention Training Policy and Procedures	1407- 5	8.1 General	1407- 7
4.1 General	1407- 5	8.2 Methods of Evaluation	1407- 7
4.2 Training Policies and Guidelines	1407- 5	8.3 Locating, Assessing, and Removing a Downed Fire Fighter	1407- 8
4.3 Rapid Intervention Crew Members	1407- 5	8.4 Removing a Downed Fire Fighter up a Flight of Stairs	1407- 8
4.4 Conducting, Evaluating, and Documenting Training	1407- 5	8.5 Removing a Downed Fire Fighter from First-Floor Window	1407- 8
Chapter 5 RIC Instructor Requirements	1407- 5	8.6 Removing a Downed Fire Fighter from a Second-Floor Window	1407- 8
5.1 General	1407- 5	8.7 Removing a Downed Fire Fighter from a Hole in the Floor	1407- 8
5.2 Conducting Training Program	1407- 5	Annex A Explanatory Material	1407- 8
Chapter 6 Student Prerequisites	1407- 6	Annex B Heat Exhaustion and Heat Stroke in Training	1407-13
6.1 General Requirements	1407- 6	Annex C Informational References	1407-13
6.2 Rapid Intervention Crew Leaders	1407- 6	Index	1407-15
6.3 Fitness	1407- 6		
Chapter 7 Rapid Intervention Operations Training Program	1407- 6		
7.1 General	1407- 6		
7.2 Incident Management System Integration	1407- 6		

NFPA 1407

Standard for

Training Fire Service Rapid Intervention Crews

2010 Edition

IMPORTANT NOTE: This NFPA document is made available for use subject to important notices and legal disclaimers. These notices and disclaimers appear in all publications containing this document and may be found under the heading “Important Notices and Disclaimers Concerning NFPA Documents.” They can also be obtained on request from NFPA or viewed at www.nfpa.org/disclaimers.

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

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex C. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

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

Chapter 1 Administration

1.1 Scope. This standard specifies the basic training procedures for fire service personnel to conduct fire fighter rapid intervention operations as specified in NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, and NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*.

1.1.1 This standard specifies basic evolutions that can be adapted to local conditions and serves as a standard mechanism for the evaluation of minimum acceptable performance during training for rapid intervention activities.

1.2* Purpose. The purpose of this standard is to specify a training program that is designed to create a highly disciplined operational capability to rescue fire fighter(s) who become lost, injured, trapped, incapacitated, or disoriented at an emergency scene or in the course of a training operation.

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

Chapter 2 Referenced Publications

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

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

NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 2008 edition.

NFPA 1021, *Standard for Fire Officer Professional Qualifications*, 2009 edition.

NFPA 1404, *Standard for Fire Service Respiratory Protection Training*, 2006 edition.

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

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

NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2010 edition.

NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*, 2010 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, 2007 edition.

NFPA 1983, *Standard on Life Safety Rope and Equipment for Emergency Services*, 2006 edition.

2.3 Other Publications.

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

2.4 References for Extracts in Mandatory Sections.

NFPA 1404, *Standard for Fire Service Respiratory Protection Training*, 2006 edition.

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

NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2010 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, 2007 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.



3.2.4* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Shall. Indicates a mandatory requirement.

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

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

3.3 General Definitions.

3.3.1* Fire Department. An organization providing rescue, fire suppression, emergency medical services, hazardous materials operations, special operations, and related activities.

3.3.2 Fire Service. Career or volunteer service groups that are organized and trained for the prevention and control of loss of life and property from any fire or disaster.

3.3.3 Individual Air Management Program. A program to develop an individual’s awareness of his or her personal air consumption rate while wearing respiratory protection equipment in a work mode. [1404, 2006]

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

3.3.5 Personal Accountability Report (PAR). A report requested by and communicated to the incident commander from fire crews operating at a scene as to their location and situation.

3.3.6* Rapid Intervention Crew (RIC). A dedicated crew of fire fighters who are assigned for rapid deployment to rescue lost or trapped members. [1710, 2010]

3.3.7 Rapid Intervention Crew/Company Universal Air Connection (RIC UAC). A system that allows emergency replenishment of breathing air to the SCBA of disabled or entrapped fire or emergency services personnel. [1981, 2007]

3.3.8 Room Orientation. The set of skills that allow an interior structural fire fighter to move into and through interior rooms while remaining aware of their position in the room relative to their entry point, furnishings, alternate exit routes, and other connected rooms/areas.

Chapter 4 Rapid Intervention Training Policy and Procedures

4.1 General.

4.1.1 A rapid intervention training program shall be developed for the safety of all fire suppression personnel.

4.1.2 Risks to safety of fire department members during training programs shall be kept to a minimum.

4.2 Training Policies and Guidelines. The authority having jurisdiction (AHJ) shall establish written policies for rapid intervention training that meet the requirements of this standard.

4.2.1* Rapid intervention operations shall be guided by written operational policies or guidelines and reinforced through a comprehensive training program.

4.2.2 The training policy shall be consistent with the department operational procedures, including automatic aid and mutual aid departments.

4.2.3* Rapid intervention training shall be developed and conducted to provide a constant, sustainable rapid intervention capability at the emergency scene utilizing a minimum crew size as required by NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, or NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*.

4.2.4 The RIC training program shall train fire fighters to use individual RIC skills as a part of a crew.

4.2.5 The policy shall address the entry level requirements for crew members, the training objectives, basic skills, equipment, and training evolutions contained in this standard.

4.3 Rapid Intervention Crew Members.

4.3.1 All members being trained to become part of a RIC shall meet the minimum requirements outlined in Chapter 6.

4.3.2 All members being trained to become part of a RIC shall receive a copy of the training policy.

4.4* Conducting, Evaluating, and Documenting Training. A safety briefing shall be conducted prior to RIC training evolutions.

4.4.1 The training policy shall include an annual performance evaluation of the RIC operations and RIC members based on the requirements of this standard.

4.4.2* Training and evaluation documentation shall be maintained as required by the AHJ.

Chapter 5 RIC Instructor Requirements

5.1* General. All instructors shall be qualified to deliver RIC training as determined by the AHJ.

5.1.1 The instructor-in-charge shall be responsible for full compliance with this standard.

5.1.2 It shall be the responsibility of the instructor-in-charge to coordinate overall evolutions during RIC training.

5.1.3 Additional instructors shall be designated when factors such as extreme temperatures or large groups are present, and evolutions of long duration or complexity are planned.

5.2* Conducting Training Program. The participating student-to-instructor ratio shall not be greater than 5 to 1.

5.2.1 Prior to the evolution, instructors shall ensure that all protective clothing and equipment are being worn or used according to manufacturer's instructions.

5.2.2 Instructors shall conduct an accountability check as crews enter and exit the structure during an RIC training evolution.

5.2.3 Instructors shall monitor and supervise all assigned students during the RIC training evolution.

5.2.4 The instructor-in-charge shall provide for rest and rehabilitation of members operating at the scene, including any necessary medical evaluation and treatment, food and fluid replenishment, and relief from climatic conditions. (See Annex B.)

Chapter 6 Student Prerequisites

6.1 General Requirements. Prior to being permitted to participate in RIC training, the student shall have received training to meet the job performance requirements for Fire Fighter I in NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.

6.1.1 Students participating in RIC training who have received the required minimum training from other than the AHJ shall not be permitted to participate in any RIC training without first presenting prior written evidence of having successfully completed the prescribed minimum training to the level specified in Section 6.1.

6.2 Rapid Intervention Crew Leaders.

6.2.1 All designated RIC leaders shall meet the requirements of Fire Officer I as specified in NFPA 1021, *Standard for Fire Officer Professional Qualifications*.

6.2.2 RIC leaders shall complete the rapid intervention training program.

6.3 Fitness. The AHJ shall ensure that members can perform assigned duties and functions of rapid intervention and that members perform training exercises in accordance with Chapter 10 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

Chapter 7 Rapid Intervention Operations Training Program

7.1 General. The rapid intervention training program shall include the following areas:

- (1)*Risk assessment and risk management
- (2) Activation and management of rapid intervention operations
- (3)*Communications procedures specific to rapid intervention functions
- (4) Accountability and resource management
- (5) Criteria for deploying rapid intervention crews and resources to the scene
- (6)*Integration of fire fighter rescue operations into the incident command system as specified by the AHJ
- (7) Implementation of an incident accountability system that meets the requirements of NFPA 1561, *Standard on Emergency Services Incident Management System*

(8)*Potential impact of RIC operations on the safety and welfare of rescuers and others as well as on other activities at the incident site

(9)*Distinction between rescue and recovery modes

7.2 Incident Management System Integration. The AHJ shall provide for and utilize training on the implementation of an incident management system that meets the requirements of NFPA 1561, *Standard on Emergency Services Incident Management System*, with written standard operating procedures applying to all members involved in emergency RIC operations.

7.3* Rotation of RIC Personnel. RIC instructors shall rotate personnel to reduce stress and fatigue.

7.4 Rapid Intervention Skills. The rapid intervention training program shall include the following as a minimum for personal and crew-oriented skills training and evaluation:

- (1)*Declaring a fire fighter emergency
- (2) Search techniques
- (3) Access and extrication
- (4) Air supply
- (5) Ropes
- (6) Protecting downed fire fighter(s) in place
- (7) Moving downed fire fighter(s) to safety
- (8) Fire fighter self-rescue techniques

7.5* Declaring a Fire Fighter Emergency. The following protocol shall be included in the minimum training for RIC members:

- (1) Declaration of emergency (the word or phrase to initiate an emergency response by a RIC)
- (2) Unit/Name — Situation — Location — Intention — personal accountability report (PAR) (the nature of the emergency and conditions)

7.6* Search Techniques. The following skills shall be included in the minimum training for RIC members:

- (1) Searching an area utilizing ropes
- (2) Searching in an area with limited means of egress
- (3) Searching with thermal imaging equipment

7.7 Access and Extrication. The following skills shall be included in the minimum training for RIC members:

- (1) Breach of barriers (walls, ceilings, floors)
- (2) Self-contained breathing apparatus (SCBA) profile reduction drill
- (3) Recognizing entanglement hazards
- (4) Disentanglement
- (5) Extrication from debris

7.8* Air Supply. The following skills shall be included in the minimum training for RIC members:

- (1) Air management procedures and techniques as required by NFPA 1404, *Standard for Fire Service Respiratory Protection Training*
- (2) Rescue air
 - (a) Reposition or replace SCBA face piece on downed fire fighter
 - (b) Replace mask-mounted regulator on downed fire fighter
 - (c) Utilize the RIC universal air connection (UAC), where available
 - (d) Replace air supply to a downed fire fighter
 - (e)*Alternate rescue air supply sources



7.9 SCBAs. SCBAs used in training shall comply with the requirements of NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*.

7.10* Ropes, Slings, and Harnesses. The following skills shall be included in the minimum training for RIC members:

- (1) The use of search ropes, slings, and harnesses
- (2) The use of mechanical advantage rope systems for rescue of fire fighters
- (3) The use of rescue knots
- (4) The use of any equipment or rescue tactics required by the AHJ

7.10.1 All belay and life safety ropes, slings, and harnesses used in training shall comply with the requirements of NFPA 1983, *Standard on Life Safety Rope and Equipment for Emergency Services*.

7.10.2 When participating in an elevated emergency egress or vertical lift scenario, the fire fighter in training shall be secured by a belay line and a Class 1 harness if one of the following applies:

- (1) The fire fighter is playing the role of the downed fire fighter.
- (2) The fire fighter is participating in a self-rescue drill.
- (3) The fire fighter is rappelling.

7.11 Protecting Downed Fire Fighter(s) in Place. The following skills shall be included in the minimum training for RIC members:

- (1) Provide and maintain a continuous air supply
- (2) Provide protective hose line(s)
- (3) Secure a dedicated communications channel (talk group) for rescue operations
- (4) Continuously monitor conditions that can affect the rescue operations

7.12 Moving Downed Fire Fighter(s) to Safety. The following skills shall be included in the minimum training for RIC members:

- (1) Using basic drags, lifts, and carries (blankets, webbing/rope, push-pull, and simple pulley system)
- (2) Moving a downed fire fighter up and down stairs
- (3) Utilizing a rescue basket or rescue boards
- (4) Moving a downed fire fighter over a ladder (conscious assist and unconscious carry)
- (5) Moving a downed fire fighter through a window (ground level and upper levels)
- (6) Moving a downed fire fighter from below the area of operations (through floor)
- (7) Moving a downed fire fighter in an attic space
- (8) Moving a downed fire fighter from below grade
- (9) Moving a downed fire fighter through an elevated (restricted size) window in a room with limited space for crew movement

7.12.1 Training for skills in 7.12(1) through 7.12(9) shall include various conditions such as in limited or zero visibility.

7.12.2 Additional skills and rescue scenarios shall be developed as required by the AHJ.

7.13 Fire Fighter Self-Rescue.

7.13.1 The following skills shall be included in the minimum training for RIC members:

- (1) Recognizing situations under which rapid intervention is required for rescue and required techniques for calling for assistance
- (2) Freeing self from entanglement
- (3) Rapid room orientation and exit, including awareness of primary and secondary exits from room
- (4) Individual air management

7.13.2 Escape techniques for elevated emergency egress as approved by the AHJ shall be conducted in compliance with 7.10.2.

7.14 Tools and Equipment. The training program shall include the use of any equipment or rescue techniques approved by the local AHJ.

7.14.1* Tools and equipment to be used by the RIC shall be determined by the AHJ based on need and resources available.

7.14.2 Training for rapid intervention shall also include training on other rescue equipment and tools provided by the fire department.

Chapter 8 Required Performance for Rapid Intervention Crews (RIC)

8.1 General.

8.1.1 The required performance for establishing a fire fighter rescue team shall consist of assembling the necessary staffing, assembling the minimum amount of tools, maintaining crew integrity and accountability, and locating and removing a fire fighter from a hazardous environment.

8.1.2 RIC operations shall be conducted by the unit designated by the AHJ.

8.1.3 The required staffing of RIC shall be consistent with the requirements of NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*.

8.1.4 A safety officer shall be appointed for all RIC evolutions.

8.2 Methods of Evaluation.

8.2.1 The RIC shall be staged in an area designated by the evaluator prior to the start of the evolution.

8.2.2 A simulated downed fire fighter shall be placed in a location determined by the evaluator prior to the start of the evolution.

8.2.3 Simulated "safe areas" shall be identified by the evaluator prior to the start of the evolution.

8.2.4 These areas shall serve as locations where the RIC can move the downed fire fighter to end the evolution.

8.2.5 When ordered to begin the evolution, the RIC shall be deployed to initiate the rescue.

8.2.6 The evolution shall conclude when the downed fire fighter is removed to the designated safe area.

8.2.7 The time to complete the evolution shall be documented by the evaluator.

8.3 Locating, Assessing, and Removing a Downed Fire Fighter.

8.3.1 The required performance for locating, assessing, and removing a downed fire fighter shall consist of locating a simulated downed fire fighter using organized search and rescue tactics.

8.3.2 RICs shall wear full personal protective equipment (PPE) and SCBA.

8.3.3 The downed fire fighter shall be assessed for usable air supply, major traumatic injury, and level of consciousness.

8.3.4 A rescue air supply shall be placed in service when sustainable breathing air for the downed fire fighter is absent.

8.3.5 A radio report shall be broadcast including the location of the downed fire fighter, the fire fighter's condition, and the intention of the RIC.

8.3.6 The RIC shall package the downed fire fighter according to policy and guidelines established by the AHJ.

8.4 Removing a Downed Fire Fighter up a Flight of Stairs.

8.4.1 The required performance for removing a downed fire fighter up a flight of stairs shall involve a minimum of two fire fighters wearing a full complement of PPE and SCBA.

8.4.2 The RIC shall apply rescue techniques approved by the AHJ.

8.5 Removing a Downed Fire Fighter from First-Floor Window.

8.5.1 The required performance for removing a downed fire fighter from a first-floor window shall involve a minimum of two fire fighters wearing a full complement of PPE and SCBA.

8.5.2 The RIC shall apply rescue techniques approved by the AHJ.

8.6 Removing a Downed Fire Fighter from a Second-Floor Window.

8.6.1 The required performance for removing a downed fire fighter from a second-floor window shall involve a minimum of two fire fighters wearing a full complement of PPE and SCBA.

8.6.2 The RIC shall apply rescue techniques approved by the AHJ.

8.7 Removing a Downed Fire Fighter from a Hole in the Floor.

8.7.1 The required performance for removing a downed fire fighter from a hole in the floor shall involve a minimum of two fire fighters wearing a full complement of PPE and SCBA.

8.7.2 The RIC shall apply rescue techniques approved by the AHJ.

Annex A Explanatory Material

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

A.1.2 This standard contains the basic training requirements to meet the following requirement in Section 8.8 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*: The fire department shall provide personnel for the rescue of members operating at emergency incidents.

A.3.2.1 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase "authority having jurisdiction," or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.2.4 Listed. The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

A.3.3.1 Fire Department. The term *fire department* should include any public, governmental, private, industrial, or military organization engaging in this type of activity. The organization can be staffed by personnel who are career, volunteer, or a combination of both.

A.3.3.4 Member. A fire department member can be a full-time or part-time employee or a paid or unpaid volunteer, can occupy any position or rank within the fire department, and can engage in emergency operations.

A.3.3.6 Rapid Intervention Crew (RIC). The AHJ is responsible for evaluating the need and resources for team members and additional teams.



A.4.2.1 The AHJ should ensure that a standard operating procedure or guideline is in place, which specifies the response of a rapid intervention crew (RIC), conditions requiring the deployment of a RIC, and the criteria for termination of the rapid intervention function at an incident. An example of a standard operating procedure/guideline is provided in Figure A.4.2.1.

- (1) The AHJ should ensure that there is an emergency evacuation procedure designed to evacuate members from an area and to account for their safety when an imminent hazard is recognized.
- (2) This procedure should include a method to notify all members in the affected area immediately by any effective means including audible warning devices, visual signals, and radio signals.
- (3) The AHJ should comply with all applicable local, state, and federal laws.
- (4) The AHJ should ensure that a risk assessment is conducted prior to committing a RIC to a rescue operation.
- (5) The AHJ should identify the type and kind of internal resources needed for RICs and should maintain a list of those resources.
- (6) The AHJ should identify the type and availability of external resources needed to augment existing capabilities for RICs and should maintain a list of those resources. Examples include heavy rescue units, technical rescue teams, urban search and rescue teams, and industrial, military, and other resources.
- (7) The AHJ should establish procedures for the provision of those external resources needed for RIC operations.

A.4.2.3 When departments lack the staffing necessary to assemble a full RIC, as required by NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, fire fighters should be trained to consider defensive tactical options as a priority.

A.4.4 The safety briefing can be conducted by a designated safety officer, company officer, or instructor, depending on the nature, size, and complexity of the evolution.

A.4.4.2 Refer to NFPA 1401, *Recommended Practice for Fire Service Training Reports and Records*, for guidance on maintaining training records and reports.

A.5.1 All fire service training should be provided by qualified instructors, meeting the requirements of Instructor I of NFPA 1041, *Standard for Fire Service Instructor Professional Qualifications*. However, the Committee anticipates that, under certain circumstances, RIC training might also be provided by another qualified RIC member. This RIC member should meet the requirements of Fire Fighter II in NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.

A.5.2 It is important that the participating student-to-instructor ratio be monitored so that it does not exceed the span of control necessary to provide proper supervision of trainees.

A.7.1(1) Incident commanders and fire fighters should be trained to plan strategies and manage risks based on a given rescue scenario (e.g., what actions are to be taken given the likely success or failure of a situation).

A.7.1(3) Communications includes the declaration of a fire fighter emergency. Rules and actual terminology should be determined by the AHJ.

A.7.1(6) The training program should focus on providing department personnel with an understanding of a rapid intervention role as part of the command structure

A.7.1(8) The AHJ should consider including the immediate psychological stress on rescue personnel.

A.7.1(9) The AHJ should refer to NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents* (Chapter 6, *Rope Rescue*), for additional guidance in developing training evolutions and operational considerations.

A.7.3 Instructors and operational personnel are encouraged to review NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*, which provides specific guidance for the reduction of injuries from fatigue, stress, exhaustion, exposure, and other hazardous situations.

A.7.4(1) The conditions under which a fire fighter should call for assistance can include (but are not limited to) one in which the fire fighter has done the following:

- (1) Become tangled, pinned, or stuck and cannot extricate self in 60 seconds
- (2) Fallen through roof or floor
- (3) Been caught in flashover
- (4) Been in an area with zero visibility, had no contact with a hose or lifeline, and did not know the direction to an exit
- (5) Had the primary exit blocked by fire or collapse and had not been able to locate a secondary exit within 30 seconds
- (6) Experienced a low air alarm activation, and was not at an exit (door or window) within 30 seconds
- (7) Experienced a failure of an SCBA
- (8) Been unable locate an exit (door or window) within 60 seconds

It is recommended that, after calling for assistance, the fire fighter activate the PASS alarm to assist the RIC in locating the fire fighter.

A.7.5 The protocol in this section is one example used by several fire departments. Other variations of communicating the fire fighter emergency can be used, as determined by the AHJ.

A.7.6 The AHJ should refer to NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents* (Chapter 7, *Confined Space Search and Rescue*), for additional guidance in developing training evolutions and operational considerations.

RAPID INTERVENTION CREW (RIC)

Standard Operating Procedure/Guideline

- (1) **PURPOSE.** The purpose of the Rapid Intervention Crew (RIC) is to be immediately available to assist a fire fighter who becomes trapped or in distress.
- (2) **SCOPE.** This procedure will apply to all emergency operations where a RIC has been dispatched or is needed.
- (3) **NOTIFICATION.** A RIC will be dispatched by Fire Alarm as defined below:
 - (3.1) If dispatcher has received reports from more than one source of a structure fire, a First Alarm has been transmitted, a building collapse has been reported, or whenever an Incident Commander determines the need for a RIC exists.
 - (3.2) The dispatcher shall assign a RIC, as designated on the run cards, to respond to the incident.
 - (3.3) The dispatcher shall notify the Unit that they are assigned as the RIC.
 - (3.4) The dispatcher shall notify the Incident Commander of the identity of the responding RIC.
- (4) **PERSONNEL.** The RIC team shall meet the following minimum requirements:
 - (4.1) The team shall consist of a minimum of two personnel (NFPA 1500: 6.5.2), but four personnel are preferred and shall be used when possible.
 - (4.2) As a minimum, team members shall be certified Fire Fighter 1 and Haz Mat Operational trained.
- (5) **RIC TEAM POSITION.** The RIC shall assume the following positions:
 - (5.1) The officer of the RIC shall, upon arrival, report to the Incident Commander and after an initial RIC/Rescue size-up (360 degree), remain at the Command Post unless otherwise directed by the IC.
 - (5.2) The entire RIC shall remain at a position from which they can be readily deployed.
 - (5.3) At a high-rise or other large-scale operation, the Operations Post shall be the preferred location for the RIC.
 - (5.4) At large-scale or unusual operations, additional RICs shall be permitted to be positioned at additional locations as determined by the IC.
- (6) **RIC DUTIES.** The following duties shall be done after arrival by the RIC:
 - (6.1) The RIC Unit Officer shall, on arrival, make the Incident Commander aware of the Unit's presence and designation as the RIC.
 - (6.2) The RIC officer and one team member shall make an immediate and rapid RIC/Rescue size-up of the fire building and surrounding properties to determine possible rescue positions and needs.
 - (6.3) The RIC shall stand by, intact as a unit, ready to act immediately as directed by the IC.
 - (6.4) While standing by, the RIC team shall determine the availability and location of aerial, tower, and/or portable ladders.
 - (6.5) The RIC team shall throw a ground ladder to the second floor of the front of the building structure and other areas deemed necessary by the RIC officer or IC.
 - (6.6) They shall determine the location of EMS personnel at the scene.
 - (6.7) The RIC shall maintain a constant state of readiness at all times.
 - (6.8) Radio messages shall be monitored for any indication of members in distress.
- (7) **TOOLS AND EQUIPMENT.**
 - (7.1) The RIC shall be equipped with at least one portable radio with 153.83 MHz (national fire ground) for every two members. It is preferred that all members on the RIC be radio equipped.

FIGURE A.4.2.1 Example of Departmental Standard Operating Procedure/Guideline for a Rapid Intervention Crew.



(7) TOOLS AND EQUIPMENT. (continued)

- (7.2) The RIC should determine the location of portable lights, hydraulic and pneumatic tools, and rabbit tools and/or other tools and equipment that might be needed to perform their duties.
- (7.3) The tools selected shall reflect the type of construction and rescue operation requirements likely to be encountered.
- (7.4) The standby equipment shall include a spare SCBA.
- (7.5) In addition to normal forcible entry/overhaul tools, the RIC shall report to the Command Post with a search rope/RIC kit, and rope rescue kit.
 - (7.5.1) RIC kit: holds one primary search rope and four personal rope bags
 - (7.5.2) One primary search rope bag: 200 feet of search rope
 - (7.5.3) Four personal rope bags: 50 feet of search rope each
 - (7.5.4) Rope rescue kit: 150 feet of 10 mm rope, pulleys, and large hooks

(8) RESTRICTIONS.

- (8.1) The RIC should not be used to provide relief for operating units until the fire/incident has been declared “under control” by the IC.
- (8.2) The RIC should not be used for fire fighting. When the IC directs the RIC to work, whether to a distress call or other duties, an additional RIC should be immediately formed or special called.
- (8.3) If assigned by a superior officer to other than RIC duties, the RIC unit officer shall remind such superior of RIC designation.

© 2009 National Fire Protection Association

NFPA 1407 (p. 2 of 2)

FIGURE A.4.2.1 *Continued*

A.7.8 Air management is a critical skill for which training must be provided and maintained for the safety of fire-fighting personnel. An example of an air management refresher drill is provided in Figure A.7.8.

A.7.8(2)(e) Alternate rescue air supply sources could include an extended air line from a cascade unit or other remote air supply.

A.7.10 The AHJ should refer to NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents* (Chapter 6, *Rope Rescue*), for additional guidance in developing training evolutions and operational considerations.

A.7.14.1 Each RIC member should receive training and evaluation on the following RIC equipment (*see Figure A.7.14.1*):

- (1) Ropes, including search, rescue, and life safety ropes and webbing (2 in. and 1 in. widths)
- (2) Forcible entry tools, as provided by the AHJ
- (3) Rescue air supply
- (4) Thermal imager
- (5) Personal protective equipment
- (6) Ground ladders

- (7) Hand light
- (8) Radio communications equipment

An RIC equipment package could include the following:

- (1) Personal escape (bail out) rope and bag
- (2) Rabbit tool
- (3) Stokes basket
- (4) Thermal imager
- (5) Power saws
- (6) 8-ft attic ladder

Additional heavy rescue equipment should be available on scene for immediate use by the RIC if needed, and all members of a team should be proficient in the use of the following:

- (1) Hydraulic rescue tools (spreaders, cutters, and rams)
- (2) Air lifting bags
- (3) Cribbing
- (4) Rope rescue equipment to build lowering and hauling systems
- (5) Shoring equipment
- (6) Air struts

AIR MANAGEMENT REFRESHER

Since it's been a while since we had our Air Management Training, let's review our Air Management procedures.

- (1) Check your own SCBA when you report for duty, regardless of the time. (Minimum pressure is 4050 psi.)
- (2) Monitor air pressure as an individual and/or team.
 - (a) Examples: regular time intervals—approximately every 5 minutes, CAD safety timer, change of work area (floor or area), passing major landmarks, completion of assignment and prior to accepting another, and as situation dictates.
 - (b) Crew/team to give an automatic air status report to team leader when the first member of the crew/team's air pressure falls to 2000 psi.
- (3) Manage air level and request relief so that egress from the IDLH occurs prior to the activation of the low-air alarm.
- (4) If a low air alarm activates in the IDLH environment, it calls for an immediate radio transmission to Command specifying WHO you are, WHERE you are, and WHAT your status is.
 - (a) *Example:* "Command from E 4, Firefighter Jones, I'm on the first floor in the Bravo-Charlie corner. My air status is 1100 and I am in sight of the door on the Bravo wall and exiting."
 - (b) Command will confirm that the RIC Leader has received the member's message.
 - (c) RIC will evaluate the need to reposition to confirm the member's exit.
 - (d) The RIC Leader will then track the member's remaining time in the IDLH and notify Command if member has not exited within 1 minute of low-air notification.
 - (e) Command will evaluate the need for an immediate RIC response.
 - (f) Member will notify command *immediately* upon exit from building.
- (5) All members shall maintain a heightened awareness of low air and PASS alarm activation.

A low-air alarm activating without a notification to Command will produce a call to Command from any crew or member in close proximity to the alarm, reporting a low-air alarm activation and the possible location.

Example: Command from any crew or member in close proximity to the alarm, reporting a low-air alarm activation and the possible location.
- (6) The crew shall constantly monitor the member in low-air alarm. In situations of low visibility and with crews of three or more members, the member in low-air alarm should be moved to the second position from the front and kept in touch contact at all times.

The following conditions are considered automatic criteria for calling "Mayday":

- (a) Member in low-air alarm *and* disoriented or unsure of location
- (b) SCBA failure
- (c) Member trapped, entangled, or unable to free self within approximately 1 minute
- (d) Finding a fire fighter in distress
- (e) At the discretion of Command

If a low-air alarm activation occurs in the IDLH, the Incident Safety Officer shall investigate the situation and report his/her findings to the Chief Safety Officer for appropriate action.

FIGURE A.7.8 Example of a Training Drill for Air Management. (Courtesy of Portland Fire and Rescue, Portland, OR)





FIGURE A.7.14.1 Example of an RIC Equipment Package.
(Courtesy of Old Mystic, CT, Fire Department)

Annex B Heat Exhaustion and Heat Stroke in Training

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

B.1 The two most serious heat-related illnesses are heat exhaustion and heat stroke. The following material is excerpted from the NIOSH document *Occupational Exposure to Hot Environments, Revised Criteria*.

Symptoms of heat exhaustion include fatigue, nausea, headache, dizziness, pallor, weakness, and thirst. Factors that predispose a person to heat exhaustion include sustained exertion in the heat, failure to replace the water lost in sweat, and lack of acclimatization. Heat exhaustion responds readily to prompt treatments such as moving to a cooler environment, resting in a recumbent position, and taking fluids by mouth.

Heat stroke is the more serious of the heat-related illnesses and is considered a medical emergency. Symptoms of heat stroke include hot, red, dry skin, a rectal temperature of 104°F (40°C) or above, confusion, possible convulsions or loss of consciousness, or any combination of these symptoms. Factors that predispose a person to heat stroke include sustained exertion in the heat by unacclimatized workers, lack of physical fitness, obesity, recent alcohol intake, dehydration, individual susceptibility, and chronic cardiovascular disease. Heat stroke should be treated immediately. Treatments to reduce body temperature rapidly include immersing in chilled water, rinsing with alcohol, wrapping in a wet sheet, or fanning with cool, dry air, or any combination of these treatments. A physician's care is necessary to treat possible secondary disorders such as shock or kidney failure. While heat exhaustion cases greatly outnumber heat stroke cases, every case of heat exhaustion should be treated as having the potential to develop into heat stroke.

Acclimatization is a physiological adaptation to heat stress that occurs over a short period of time. After acclimatization has occurred, the body sweats more while losing less salt and can maintain a lower core temperature and lower cardiovascular demands. A person becomes acclimatized to a certain work intensity and temperature with repeated exposures to that work load and temperature. Formal acclimatization procedures might not be necessary for all fire fighters; however, training drills should be held outdoors regularly so that sea-

sonal acclimatization can occur. For additional protection against heat stress, fire fighters might want to perform their regular aerobic training activities outdoors, especially during the spring and summer.

The metabolic demands of fire fighting range from 60 percent to 100 percent of maximum aerobic capacity. Tasks, such as stair climbing, roof venting, and rescue operations, when performed in full gear, have an energy cost of 85 percent to 100 percent of maximum capacity and lead to near maximum heart rates.

It is clear from these estimates that a high level of cardiovascular fitness is an advantage in performing fire-fighting tasks. The higher level of fitness allows a longer work period and provides a greater reserve in case of an unexpected increase in work demands or in extreme environmental conditions.

There are fire incidents during which even the fittest, most acclimatized fire fighter is exposed to significant heat stress. For this reason, many fire departments have adopted formal procedures for on-scene rehabilitation and have incorporated them into their manuals for standard operating procedures.

The general goals of rehabilitation are as follows:

- (1) To provide physical and mental rest, allowing the fire fighter to recuperate from the demands of emergency operations and adverse environmental conditions
- (2) To revitalize fire fighters by providing fluid replacement and food as needed
- (3) To provide medical monitoring, including treatment of injuries, to determine if and when fire fighters are able to return to action

Annex C Informational References

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

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

NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 2008 edition.

NFPA 1041, *Standard for Fire Service Instructor Professional Qualifications*, 2007 edition.

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

NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*, 2008 edition.

NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents*, 2009 edition.

NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2010 edition.

C.1.2 Other Publications.

C.1.2.1 NIOSH Publication. National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, 1600 Clifton Road, Atlanta, GA 30333.

NIOSH Publication No. 86-113, *Occupational Exposure to Hot Environments, Revised Criteria*, 1986.

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

C.2.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 1006, *Standard for Technical Rescuer Professional Qualifications*, 2008 edition.

NFPA 1081, *Standard for Industrial Fire Brigade Member Professional Qualifications*, 2007 edition.

NFPA 1402, *Guide to Building Fire Service Training Centers*, 2007 edition.

NFPA 1403, *Standard on Live Fire Training Evolutions*, 2007 edition.

NFPA 1410, *Standard on Training for Initial Emergency Scene Operations*, 2010 edition.

NFPA 1975, *Standard on Station/Work Uniforms for Emergency Services*, 2009 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, 2007 edition.

NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*, 2007 edition.

C.2.2 Other Publications.

Forcible Entry, 7th edition, Stillwater OK: Fire Protection Publications, 1987.

Jakubowski, G., and Morton, M., *Rapid Intervention Teams*, Stillwater OK: Fire Protection Publications, 2001.

C.3 References for Extracts in Informational Sections. (Reserved)

Index

Copyright © 2009 National Fire Protection Association. All Rights Reserved.

The copyright in this index is separate and distinct from the copyright in the document that it indexes. The licensing provisions set forth for the document are not applicable to this index. This index may not be reproduced in whole or in part by any means without the express written permission of NFPA.

- A-**
- Access** 7.4(3), 7.7
 - Accountability check** 5.2.2
 - Air supply, including SCBA** 7.4(4), 7.9
 - For downed fire fighter 7.8(2), 8.3.3, 8.3.4, A.7.8(2)(e)
 - Failure of A.7.4(7)
 - Profile reduction drill 7.7(2)
 - Rapid intervention crew members, use by 8.3.2, 8.4.1, 8.5.1, 8.6.1, 8.7.1
 - Skills training and evaluation 7.8, A.7.8
 - Approved (definition)** 3.2.1, A.3.2.1
 - Authority having jurisdiction (AHJ)**
 - Definition 3.2.2, A.3.2.2
 - Rescue techniques approved by 8.4.2, 8.5.2, 8.6.2, 8.7.2
 - Tools and equipment, approved and determined by 7.14.1, A.7.14.1
 - Training policies established by 4.2, A.4.2.1, A.4.2.3
 - Automatic aid** 4.2.2
- C-**
- Communications training** 7.1(3), 8.3.5, A.7.1(3)
 - Conducting training program**
 - Instructor requirements 5.2, A.5.2
 - Training policy and procedures 4.4, A.4.4
- D-**
- Definitions** Chap. 3
 - Documentation of training and evaluation** 4.4.2, A.4.4.2
 - Downed fire fighters**
 - Air supply for 7.8(2), 8.3.3, 8.3.4, A.7.8(2)(e)
 - Moving to safety
 - Performance requirements, RIC 8.3 to 8.7
 - Skills training and evaluation 7.4(7), 7.12
 - Protection in place
 - Performance requirements, RIC 8.3
 - Skills training and evaluation 7.4(6), 7.11
 - Simulation 7.10.2(1), 8.2.2, 8.3.1
- E-**
- Entry level requirements** 4.2.5, 4.3.1, Chap. 6
 - Equipment and tools** 7.14
 - Equivalency to standard** 1.3
 - Evacuation procedure, emergency** A.4.2.1(1), A.4.2.1(2)
 - Evaluation**
 - Annual, of operations and RIC members 4.4.1, 4.4.2, A.4.4.2
 - Medical 5.2.4
 - Minimum for skills evaluation 7.4, A.7.4(1)
 - Required performance, methods of evaluation for 8.2
 - Extrication** 7.4(3), 7.7
- F-**
- Fire department (definition)** 3.3.1, A.3.3.1
 - Fire fighter emergency, declaring** 7.4(1), 7.5, A.7.4(1), A.7.5
 - Fire Fighter I job performance requirements** 6.1
 - Fire fighters, downed** *see* Downed fire fighters
 - Fire fighter self-rescue** 7.4(8), 7.10.2(2), 7.13
 - Fire service (definition)** 3.3.2
 - Fitness requirements** 6.3
- H-**
- Health and safety** 4.1.1, 4.1.2, 4.4, A.4.4
 - Additional instructors used as needed 5.1.3
 - Air supply *see* Air supply, including SCBA
 - Downed fire fighters *see* Downed fire fighters
 - Fitness requirements 6.3
 - Heat exhaustion and heat stroke in training Annex B
 - Potential impact of RIC operations 7.1(8), A.7.1(8)
 - Rest and rehabilitation 5.2.4
 - Standard operating procedures A.4.2.1
 - Heat exhaustion and heat stroke in training** Annex B
 - Hole in floor, removing downed fire fighter from** 8.7
- I-**
- Incident command system, integration of rescue operations into** 7.1(6), 7.2, A.7.1(6)
 - Individual air management program** 7.8(1), 7.13.1(4), Fig. A.7.8
 - Definition 3.3.3
 - Instructor requirements** Chap. 5
 - Instructor-in-charge 5.1.1, 5.1.2, 5.2.4
 - Rotation of personnel during training 7.3
- J-**
- Job performance requirements, Fire Fighter I** 6.1
- L-**
- Labeled (definition)** 3.2.3
 - Listed (definition)** 3.2.4, A.3.2.4
- M-**
- Medical evaluation and treatment** 5.2.4
 - Members**
 - Definition 3.3.4, A.3.3.4
 - Health and safety of *see* Health and safety
 - Mutual aid** 4.2.2
- O-**
- Operations training program** *see* Training program, rapid intervention operations
- P-**
- PASS alarm** A.7.4(1)
 - Performance requirements, rapid intervention crew** Chap. 8
 - Locating and assessing downed fire fighter 8.3
 - Methods of evaluation 8.2
 - Removing downed fire fighter 8.3 to 8.7
 - Personal accountability report (PAR)** 7.5(2)
 - Definition 3.3.5
 - Prerequisites, required** 4.2.5, 4.3.1, Chap. 6
 - Protection in place, downed fire fighter**
 - Minimum skills training and evaluation 7.4(6), 7.11
 - Performance requirements, RIC 8.3
 - Protective clothing and equipment** 5.2.1, 8.3.2, 8.4.1, 8.5.1, 8.6.1, 8.7.1
 - Purpose of standard** 1.2, A.1.2
- R-**
- Rapid intervention crew/company universal air connection (RIC UAC)** 7.8(2)(c)
 - Definition 3.3.7