NFPA® 1550

Standard for Emergency Responder Health and Safety

2024 Edition

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

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® STANDARDS

NFPA® codes, standards, recommended practices, and guides ("NFPA Standards"), 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 Standards.

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 Standards. The NFPA also makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

In issuing and making NFPA Standards 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 Standards. 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.

ALERT: THIS STANDARD HAS BEEN MODIFIED BY A TIA OR ERRATA

NFPA codes, standards, recommended practices, and guides ("NFPA Standards") may be superseded at any time by the issuance of a new edition, be amended with the issuance of Tentative Interim Amendments (TIAs), or be corrected by Errata. This updating considers the then-current and available information on incidents, materials, technologies, innovations, and methods that develop over time. Therefore, any previous edition may no longer represent the current NFPA Standard on the subject matter. NFPA encourages the use of the most current edition of any NFPA Standard [as it may be amended by TIA(s) or Errata]. An official NFPA Standard at any point in time consists of the current edition of the document, with any issued TIAs and Errata. Visit the "Codes & Standards" section at www.nfpa.org for more information.

ADDITIONAL IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® STANDARDS

Updating of NFPA Standards

Users of NFPA codes, standards, recommended practices, and guides ("NFPA Standards") should be aware that these documents may be superseded at any time by the issuance of a new edition, may be amended with the issuance of Tentative Interim Amendments (TIAs), or be corrected by Errata. It is intended that through regular revisions and amendments, participants in the NFPA standards development process consider the then-current and available information on incidents, materials, technologies, innovations, and methods as these develop over time and that NFPA Standards reflect this consideration. Therefore, any previous edition of this document no longer represents the current NFPA Standard on the subject matter addressed. NFPA encourages the use of the most current edition of any NFPA Standard [as it may be amended by TIA(s) or Errata] to take advantage of current experience and understanding. An official NFPA Standard at any point in time consists of the current edition of the document, including any issued TIAs and Errata then in effect.

To determine whether an NFPA Standard has been amended through the issuance of TIAs or corrected by Errata, visit the "Codes & Standards" section at www.nfpa.org.

Interpretations of NFPA Standards

A statement, written or oral, that is not processed in accordance with Section 6 of the Regulations Governing the Development of NFPA Standards 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 Standard. The users of NFPA Standards 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 Standards.

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 Standard 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 Standards 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 Standards are copyrighted. 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 Standards 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 Standards, contact NFPA at the address below.

For Further Information

All questions or other communications relating to NFPA Standards 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 standards 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 02269-9101; email: stds_admin@nfpa.org.

For more information about NFPA, visit the NFPA website at www.nfpa.org. All NFPA codes and standards can be viewed at no cost at www.nfpa.org/docinfo.

NFPA® 1550

Standard for

Emergency Responder Health and Safety

2024 Edition

This edition of NFPA 1550, *Standard for Emergency Responder Health and Safety*, was prepared by the Technical Committees on Fire Service Occupational Safety and released by the Correlating Committee on Professional Qualifications. It was issued by the Standards Council on December 21, 2023, with an effective date of January 10, 2024.

This document has been amended by one or more Tentative Interim Amendments (TIAs) and/or Errata. See "Codes & Standards" at www.nfpa.org for more information.

This edition of NFPA 1550 was approved as an American National Standard on January 10, 2024.

Origin and Development of NFPA 1550

This first edition of NFPA 1550, *Standard for Emergency Responder Health and Safety*, has been developed as part of the consolidation plan for NFPA's Emergency Response and Responder Safety (ERRS) standards. At the April 2019 NFPA Standards Council meeting, all ERRS technical committees and NFPA staff were directed to consolidate and unify the ERRS standards with similar content areas. The goal of this effort is to increase usability, reduce errors and conflicts, and ultimately produce higher quality standards.

The 2024 edition of NFPA 1550 marks the integration of NFPA 1500, *Standard on Fire Department Occupational Safety, Health, and Wellness Program*; NFPA 1521, *Standard for Fire Department Safety Officer Professional Qualifications*; and NFPA 1561, *Standard on Emergency Services Incident Management System and Command Safety*, into a single standard that addresses emergency responder health and safety.

The 2024 edition also includes several important changes. One effect of this integration is that key terms have been consolidated from these three standards into a single definitions chapter for all content. The content from the previous standalone standards remains distinct and discernible for end users due to collocating requirements they are familiar with.

For the professional qualifications chapters, the technical committee defined the duties for each position to assure that job performance requirements (JPRs) associated with those duties reflected accurate assessments for the candidates for Health and Safety Officer and Incident Safety Officer. The technical committee also adjusted JPRs for relevancy, correctness, and testability for candidate assessment.

In the chapters that address emergency responder occupational safety and health, the technical committee removed requirements for power-assisted cots. In the consolidated standard, the requirements apply only when power-assisted cots are used. Additionally, some streamlining of personal protective equipment related to hazardous materials emergency operations was done to refer to the appropriate NFPA standards addressing those items. The technical committee made updates to behavioral health and wellness programs, exposure to potentially traumatic events, and exposure to contaminants.

In the chapters related to incident management systems and command safety, the technical committee prohibited creating an incident within an incident. All hazards incident planning has been addressed and the intelligence/investigation function role in the incident command system is recognized.

The Technical Committee for Fire Service Occupational Safety created revisions to the consolidated NFPA 1550 standard with the understanding that the Technical Committee on Emergency Responders Occupational Health now has the primary responsibility for documents on occupational health, medical, and wellness requirements for emergency responders and will

coordinate its work with NFPA technical committees dealing with emergency responder safety and wellness.

For more information about the ERRS consolidation project, see nfpa.org/errs.

Correlating Committee on Professional Qualifications

William E. Peterson, *Chair*
Kissimmee, FL [M]
Rep. International Fire Service Training Association

Brian R. Brauer, University of Illinois Fire Service Institute, IL [E]
Rep. National Board on Fire Service Professional Qualifications

Jason Dolf, Aerial Services Inc, IA [U]

Angus Maclean Duff, Consolidated Fire District 2, KS [U]

Alec Feldman, Fulcrum Consultants, Ireland [SE]
Rep. JOIFF-International Organisation for Industrial Hazard Management

Douglas P. Forsman, Fairfield Bay Fire Department, AR [L]

Richard Galtieri, Spokane Fire Department, WA [U]

Scott M. Gorgon, International Association of Fire Fighters (IAFF), DC [L]

R. Kirk Hankins, Fire Consulting & Case Review International, Inc., MO [U]
Rep. International Association of Arson Investigators, Inc.

Edward M. Hawthorne, DFW Dynamics, TX [M]
Rep. American Petroleum Institute

Forest Herndon, Jr., MERE M-PACT Solutions, NJ [SE]

Bill Slosson, Washington State Patrol, WA [E]

Philip C. Stittleburg, La Farge Fire Department, WI [L]
Rep. National Volunteer Fire Council

Christopher A. Toten, US Department Of Navy, MS [E]

Charles "Randy" Watson, S-E-A, Ltd., GA [SE]

Alternates

Adam J. Goodman, S-E-A Ltd., MD [SE]
(Alt. to Charles "Randy" Watson)

David W. Lewis, Odenton, MD [L]
(Alt. to Philip C. Stittleburg)

Robert W. Rand, National Board On Fire Service Prof. Qualifications, MA [E]
(Alt. to Brian R. Brauer)

Angela White, Wisconsin Technical College System, WI [E]
(Voting Alt.)

Nonvoting

Stephen P. Austin, Cumberland Valley Volunteer Firemen's Association, DE [L]
Rep. TC on Traffic Control Incident Management Professional Qualifications

Preet Bassi, Center For Public Safety Excellence, VA [C]
Rep. TC on Fire Service Analysts and Informational Technical Specialist

Alan W. Conkle, Ohio Association of Emergency Vehicle Technicians (OAEVT), OH [M]
Rep. TC on Emergency Vehicle Mechanic Technicians Professional Qualifications

John S. Cunningham, Nova Scotia Firefighters School, Canada [U]
Rep. TC on Fire Fighter Professional Qualifications

Jay Dornseif, III, Priority Dispatch Corporation, SC [M]
Rep. TC on Public Safety Telecommunicator Professional Qualifications

Richard A. Dunn, SC State Firefighters' Association, SC [E]
Rep. TC on Fire Officer Professional Qualifications

Richard C. Edinger, North Myrtle Beach, SC [SE]
Rep. TC on Hazardous Materials Response Personnel

Ronald R. Farr, Plainwell Fire Department, MI [C]
Rep. TC on Electrical Inspection Practices

Dave E. Hanneman, Self Employed, ID [SE]
Rep. TC on Incident Management Professional Qualifications

Ronald L. Hopkins, TRACE Fire Protection & Safety Consultant, Ltd., KY [SE]
Rep. TC on Fire Service Instructor Professional Qualifications

Robert J. James, Ione Rose Consulting, LLC, AZ [SE]
Rep. TC on Building Fire and Life Safety Director Professional Qualifications

Randy J. Krause, Port of Seattle Fire Department, WA [E]
Rep. TC on Fire Service Occupational Safety and Health

Peter J. Mulvihill, Reno, NV [SE]
Rep. TC on Fire Inspector Professional Qualifications

Randal E. Novak, Ames, IA [SE]
Rep. TC on Accreditation & Certification Professional Qualifications

Jim Stumpf, Organizational Quality Associates, ID [SE]
Rep. TC on Wildfire Suppression Professional Qualifications

Robert D. Taylor, PRB Coal Users Group, IN [U]
Rep. TC on Industrial Fire Brigades Professional Qualifications

Nancy J. Trench, Oklahoma City, OK [M]
Rep. TC on Public Fire Educator Professional Qualifications

Paul Valentine, Zurich Insurance North America, IL [M]
Rep. TC on Fire Marshal Professional Qualifications

Robert Fash, 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 the management of the NFPA Professional Qualifications Project and documents related to professional qualifications for fire service, public safety, and related personnel.

Technical Committee on Fire Service Occupational Safety

Randy J. Krause, *Chair*
Port of Seattle Fire Department, WA [E]

Murrey E. Loflin, *Secretary*
National Institute for Occupational Safety & Health, WV [RT]

Christina M. Baxter, Emergency Response Tips, LLC, FL [SE]

David T. Bernzweig, Ohio Association of Professional Fire Fighters (OAPFF), OH [L]

Sandy Bogucki, Yale University Emergency Medicine, CT [SE]

Dennis R. Childress, Orange County Fire Authority, CA [U]
Rep. California State Firefighters Association

Fabrice Czarnecki, DHS, VA [SE]
Rep. American College of Occupational and Environmental Medicine (ACOEM)

David W. Dodson, Response Solutions LLC, CO [SE]
Rep. Fire Department Safety Officers Association

Brandon Fletcher, Gilt Edge Volunteer Fire Department, TN [E]

Kenneth Gale, Mitchell Associates Architects, PLLC., NY [SE]

Christopher A. Garrett, City of Owasso, OK [M]
Rep. International Fire Service Training Association

Sean M. Gray, Cobb County Fire And Emergency Services, GA [U]

Stanley Haimes, UCF College of Medicine, FL [SE]

Kepra Jack, Heartfit For Duty, AZ [U]

Scott D. Kerwood, Hutto Fire Rescue, TX [E]
Rep. International Association of Fire Chiefs

Jeffery L. King, Houston Fire Department, TX [SE]
Rep. Blue Card

James Roger Lackore, REV Fire Group, WI [M]
Rep. Fire Apparatus Manufacturers Association

Tamara DiAnda Lopes, American Iron Gym, NV [U]

Michael V. Meyers, Fire Department City of New York (FDNY), NY [U]

Steven M. Moffatt, Ascension St. Vincent/Public Safety Medical, IN [SE]

Paul J. Napoli, Association of Fire Districts of the State of New York, NY [U]
Rep. Association of Fire Districts/State of New York

Robert D. Neamy, Gardnerville, NV [M]
Rep. National Incident Management System Consortium

John R. Niemiec, International Association of Fire Fighters (IAFF), DC [L]

Mark Henderson Pound, Kentville Volunteer Fire Department, Canada [U]

David J. Prezant, Fire Department City of New York (FDNY), NY [E]

Mario D. Rueda, San Marino Fire Department, CA [E]

Daniel G. Samo, Northwestern Medical Group, IL [SE]

Andrew G. Schwartz, LION Group, Inc., OH [M]

Denise L. Smith, Skidmore College, NY [SE]

Donald F. Stewart, Medocracy Inc./Fairfax County Fire & Rescue, VA [E]

Philip C. Stittleburg, La Farge Fire Department, WI [U]
Rep. National Volunteer Fire Council

Woodrow W. Sullivan, Volunteer Fireman's Insurance Services, Inc. (VFIS), NC [I]

John Tippett, National Fallen Firefighters Foundation, MD [C]

Ronnie Villanueva, Los Angeles Fire Department, CA [U]

Siu Fung "Bruce" Wong, Self Employed, China [SE]

Alternates

Gregg Avery, Los Angeles Fire Department, CA [U]
(Alt. to Ronnie Villanueva)

Brian Carlson, University Of Cincinnati, OH [SE]
(Voting Alt.)

Kenneth Desmond, Bath, ME [U]
(Alt. to Philip C. Stittleburg)

Timothy Dorsey, Lake Ozark Fire Protection District, MO [L]
(Alt. to John R. Niemiec)

Bryan P. Duquin, Volunteer Fireman's Insurance Services, Inc. (VFIS), PA [I]
(Alt. to Woodrow W. Sullivan)

Edward I. Galaid, Roper St. Francis Occupational Medicine, SC [SE]
(Alt. to Stanley Haimes)

Edward M. Hawthorne, DFW Dynamics, TX [M]
(Alt. to Robert D. Neamy)

Karen E. Lehtonen, LION Group, Inc., OH [M]
(Alt. to Andrew G. Schwartz)

Stuart Namie, Fort Benning Fire Department, GA [U]
(Voting Alt.)

Michael Isaac Peters, Northwestern Medicine, IL [SE]
(Alt. to Daniel G. Samo)

Dan Ripley, International Fire Service Training Association (IFSTA), NE [M]
(Alt. to Christopher A. Garrett)

Joanne R. Rund, Baltimore County Fire Department, MD [E]
(Alt. to Scott D. Kerwood)

Jay L. Tarley, National Institute for Occupational Safety & Health, WV [RT]
(Alt. to Murrey E. Loflin)

Brian Dean Thompson, United States Air Force, FL [U]
(Voting Alt.)

Eric Valliere, Scottsdale Fire Department, AZ [SE]
(Alt. to David W. Dodson)

Nonvoting

William R. Hamilton, US Department of Labor, DC [E]

Andrew Levinson, US Department of Labor, DC [E]
Rep. Occupational Safety & Health Administration

Robert Fash, NFPA Staff Liaison

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

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

Committee Scope: This Committee shall have primary responsibility for documents on occupational safety and incident command in the working environment of the fire service, not including hazardous materials or cross functional events. The committee shall also have responsibility for documents related to medical requirements for firefighters, and the professional qualifications for fire department safety officer. It shall coordinate its work with NFPA technical committees dealing with emergency responder safety and wellness.

Contents

Chapter 1 Administration **1550–** 9
1.1 Scope. **1550–** 9
1.2 Purpose. **1550–** 9
1.3 Application. **1550–** 9

Chapter 2 Referenced Publications **1550–** 9
2.1 General. **1550–** 9
2.2 NFPA Publications. **1550–** 9
2.3 Other Publications. **1550–** 10
2.4 References for Extracts in Mandatory Sections. **1550–** 11

Chapter 3 Definitions **1550–** 11
3.1 General. **1550–** 11
3.2 NFPA Official Definitions. **1550–** 11
3.3 General Definitions. **1550–** 12

Chapter 4 Health and Safety Officer (NFPA 1521) **1550–** 19
4.1 Administration **1550–** 19
4.2 General. **1550–** 19
4.3 Risk Management. **1550–** 19
4.4 Laws, Codes, and Standards. **1550–** 20
4.5 Training and Education. **1550–** 21
4.6 Accident Prevention. **1550–** 21
4.7 Accident Investigation, Procedures, and Review. **1550–** 22
4.8 Records Management and Data Analysis. **1550–** 22
4.9 Apparatus and Equipment. **1550–** 23
4.10 Facility Inspection. **1550–** 24
4.11 Health Maintenance. **1550–** 24
4.12 Liaison. **1550–** 24
4.13 Infection Control. **1550–** 25

Chapter 5 Incident Safety Officer (NFPA 1521) **1550–** 26
5.1 General. **1550–** 26
5.2 General Requirements **1550–** 26
5.3 Fire Suppression Operations. **1550–** 28
5.4 Technical Search and Rescue Operations. **1550–** 29
5.5 Hazardous Materials Operations. **1550–** 29
5.6 Accident Investigations and Review. **1550–** 30
5.7 Post-Incident Analysis (PIA). **1550–** 30

Chapter 6 Fire Department Administration (NFPA 1500) **1550–** 30
6.1 Administration **1550–** 30
6.2 Fire Department Organizational Statement. .. **1550–** 30
6.3 Risk Management Plan. **1550–** 31
6.4 Safety and Health Policy. **1550–** 31
6.5 Roles and Responsibilities. **1550–** 31
6.6 Occupational Safety and Health Committee. **1550–** 32
6.7 Records. **1550–** 32
6.8 Appointment of the Health and Safety Officer. **1550–** 32

Chapter 7 Training, Education, and Professional Development (NFPA 1500) **1550–** 32
7.1 General Requirements. **1550–** 32
7.2 Member Qualifications. **1550–** 33
7.3 Training Requirements. **1550–** 33
7.4 Special Operations Training. **1550–** 34
7.5 Member Proficiency. **1550–** 34
7.6 Training Activities. **1550–** 34

Chapter 8 Fire Apparatus, Equipment, and Drivers/Operators (NFPA 1500) **1550–** 34
8.1 Fire Department Apparatus. **1550–** 34
8.2 Drivers/Operators of Fire Department Apparatus. **1550–** 35
8.3 Riding in Fire Apparatus. **1550–** 36
8.4 Inspection, Maintenance, and Repair of Fire Apparatus. **1550–** 36
8.5 Tools and Equipment. **1550–** 36

Chapter 9 Protective Clothing and Protective Equipment (NFPA 1500) **1550–** 37
9.1 General. **1550–** 37
9.2 Protective Clothing for Structural Firefighting. **1550–** 37
9.3 Protective Clothing for Proximity Firefighting Operations. **1550–** 37
9.4 Protective Clothing for Emergency Medical Operations. **1550–** 38
9.5 Protective Clothing and Equipment for Fire Inspections. **1550–** 38
9.6 Chemical-Protective Clothing for Hazardous Materials Emergency Operations. **1550–** 38
9.7 Protective Clothing and Equipment for Wildland Firefighting. **1550–** 38
9.8 Protective Ensembles for Technical Rescue Operations. **1550–** 39
9.9 Protective Clothing and Equipment for Surface Water Operations. **1550–** 39
9.10 Protective Clothing for Fire Investigators. **1550–** 39
9.11 Respiratory Protection Program. **1550–** 39
9.12 Breathing Air. **1550–** 40
9.13 Respiratory Protection Equipment. **1550–** 40
9.14 Fit Testing. **1550–** 40
9.15 Using Respiratory Protection. **1550–** 41
9.16 SCBA Cylinders. **1550–** 41
9.17 Personal Alert Safety System (PASS). **1550–** 41
9.18 Life Safety Rope and System Components. **1550–** 42
9.19 Face and Eye Protection. **1550–** 42
9.20 Hearing Protection. **1550–** 42
9.21 Ballistic Protective Equipment. **1550–** 42
9.22 New and Existing Protective Clothing and Protective Equipment. **1550–** 42

Chapter 10 Emergency Operations (NFPA 1500) **1550–** 43
10.1 Incident Management. **1550–** 43
10.2 Communications. **1550–** 43
10.3 Crew Resource Management (CRM) During Emergency Operations. **1550–** 44
10.4 Risk Management During Emergency Operations. **1550–** 44
10.5 Personnel Accountability During Emergency Operations. **1550–** 44
10.6 Members Operating at Emergency Incidents. **1550–** 45
10.7 Emergency Incident Hazard Control Zones. . **1550–** 46
10.8 Rapid Intervention for Rescue of Members. .. **1550–** 46
10.9 Rehabilitation During Emergency Operations. **1550–** 48
10.10 Scenes of Violence, Civil Unrest, or Terrorism. **1550–** 48
10.11 Post-Incident Analysis. **1550–** 48

Chapter 11 Traffic Incident Management (NFPA 1500) **1550–** 49
11.1 Reserved. **1550–** 49
11.2 Emergency Operations at Traffic Incidents. .. **1550–** 49
11.3 Placement of Apparatus and Warning Devices. **1550–** 49

11.4 Use of Apparatus as a Blocking Device. 1550– 49

Chapter 12 Facility Safety (NFPA 1500) 1550– 49
12.1 Safety Standards. 1550– 49
12.2 Inspections. 1550– 50
12.3 Maintenance and Repairs. 1550– 50
12.4 Station Alerting. 1550– 50
12.5 Contamination Control Areas Within Fire Department Facilities. 1550– 50

Chapter 13 Medical and Physical Requirements (NFPA 1500) 1550– 50
13.1 Medical Requirements. 1550– 50
13.2 Physical Performance Requirements. 1550– 50
13.3 Health and Fitness. 1550– 51
13.4 Confidential Health Data Base. 1550– 51
13.5 Infection Control. 1550– 51
13.6 Fire Department Physician. 1550– 51
13.7 Fitness for Duty Evaluations. 1550– 51

Chapter 14 Behavioral Health and Wellness Programs (NFPA 1500) 1550– 51
14.1 Behavioral Health Program. 1550– 51
14.2 Peer Support Program. 1550– 52
14.3 Wellness Program. 1550– 53

Chapter 15 Occupational Exposure to Potentially Traumatic Events (NFPA 1500) 1550– 53
15.1 General. 1550– 53
15.2 Reporting Requirements for Occupational Exposure to Potentially Traumatic Events. 1550– 53
15.3 Exposure Report Retention and Access. 1550– 53

Chapter 16 Exposure to Contaminants (NFPA 1500) 1550– 53
16.1 Training. 1550– 53
16.2 Prevention and Mitigation. 1550– 53
16.3 Risk of Exposure to Contaminants. 1550– 53
16.4 Cleaning and Maintenance. 1550– 53
16.5 Mitigation of Contaminant Exposure. 1550– 54
16.6 Incident Contaminant Reduction and Personal Hygiene. 1550– 54
16.7 Exposure Reporting Requirements. 1550– 54
16.8 Exposure Report Retention and Access. 1550– 55

Chapter 17 System Implementation (NFPA 1561) 1550– 55
17.1 Administration. 1550– 55
17.2 General. 1550– 55
17.3 Planned Events. 1550– 55
17.4 Risk Management. 1550– 55
17.5 System Flexibility. 1550– 55
17.6 Implementation. 1550– 55
17.7 Resource Accountability. 1550– 55
17.8 Incident Scene Rehabilitation. 1550– 56
17.9 System Qualification Process. 1550– 56
17.10 Training and Qualifications. 1550– 56

Chapter 18 Functions and Structure of Command (NFPA 1561) 1550– 56
18.1 Command Structure. 1550– 56
18.2 Coordination. 1550– 57
18.3 Incident Commander. 1550– 57
18.4 Intelligence/Investigation. 1550– 58
18.5 Unified Command. 1550– 58
18.6 Area Command. 1550– 58
18.7 Multi-Agency Coordination System. 1550– 59
18.8 Supervisory Personnel. 1550– 59
18.9 Command Staff. 1550– 59
18.10 General Staff. 1550– 61

Chapter 19 Communications and Information Management (NFPA 1561) 1550– 63
19.1 Communications Systems. 1550– 63
19.2 Protocols and Terminology. 1550– 63
19.3 Emergency Traffic. 1550– 63
19.4 Telecommunicator Support. 1550– 63

Chapter 20 Incident Management Team(s) (NFPA 1561) 1550– 64
20.1 Positions. 1550– 64
20.2 Training. 1550– 64
20.3 Staffing. 1550– 64

Chapter 21 Command Safety (NFPA 1561) 1550– 64
21.1 Supervisory Levels. 1550– 64
21.2 Span of Control. 1550– 64
21.3 Overall Command. 1550– 64
21.4 Command Post Establishment. 1550– 64
21.5 Accountability Systems. 1550– 64
21.6 Assignment of Staff Aides. 1550– 64
21.7 Additional Resources. 1550– 64
21.8 Rapid Intervention Crew/Company Assignment. 1550– 64
21.9 Responsibilities of the Incident Commander. 1550– 64
21.10 Community Risk and Emergency Operation Plans. 1550– 64
21.11 Command Post Requirements. 1550– 64
21.12 Command Post. 1550– 65
21.13 Safety Officer and Assistant Safety Officer. 1550– 65

Annex A Explanatory Material 1550– 66

Annex B Explanation of the Professional Qualifications Standards and Concepts of JPRs 1550– 117

Annex C Overview of JPRs for Health and Safety Officer and Incident Safety Officer (1521) 1550– 121

Annex D National Fallen Firefighters Foundation (NFFF) 1550– 130

Annex E Organization (NFPA 1521) 1550– 130

Annex F Sample ISO Incident Checklists (NFPA 1521) 1550– 131

Annex G Safety Officer's Post-Incident Analysis Report (NFPA 1521) 1550– 151

Annex H Monitoring Compliance with a Fire Service Occupational Safety, Health, and Wellness Program (NFPA 1500) 1550– 152

Annex I Building Hazard Assessment (NFPA 1500) 1550– 171

Annex J Risk Management Plan Factors (NFPA 1500) 1550– 171

Annex K Sample Facility Inspector Checklists (NFPA 1500) 1550– 173

Annex L Emergency Operations Centers (NFPA 1561) 1550– 178

Annex M Use the Planning "P" When Developing an Initial Incident Action Plan (NFPA 1561) 1550– 179

Annex N	**Area Command (NFPA 1561)**	**1550–** 182
Annex O	**Expanded Area Command Using Zones (NFPA 1561)**	**1550–** 190
Annex P	**Division Designation: Tactical Assignments for a Multistory Incident (NFPA 1561)**	**1550–** 196
Annex Q	**Fire Service Information (NFPA 1561)**	**1550–** 200
Annex R	**Functional Assignments for High-Rise Building Incidents (NFPA 1561)**	**1550–** 203
Annex S	**Development of Subordinate Officers or Implementing a More Efficient Management System (NFPA 1561)**	**1550–** 205
Annex T	**Incident Management for the Fire Service on Type 5 or Type 4 Incidents (NFPA 1561)**	**1550–** 205
Annex U	**Structural Firefighting — Risk Assessment and Operational Expectations (NFPA 1561)**	**1550–** 210
Annex V	**Informational References**	**1550–** 211
Index		**1550–** 215

NFPA 1550

Standard for

Emergency Responder Health and Safety

2024 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 Standards." They can also be viewed at www.nfpa.org/disclaimers or obtained on request from NFPA.

UPDATES, ALERTS, AND FUTURE EDITIONS: New editions of NFPA codes, standards, recommended practices, and guides (i.e., NFPA Standards) are released on scheduled revision cycles. This edition may be superseded by a later one, or it may be amended outside of its scheduled revision cycle through the issuance of Tentative Interim Amendments (TIAs). An official NFPA Standard at any point in time consists of the current edition of the document, together with all TIAs and Errata in effect. To verify that this document is the current edition or to determine if it has been amended by TIAs or Errata, please consult the National Fire Codes® Subscription Service or the "List of NFPA Codes & Standards" at www.nfpa.org/docinfo. In addition to TIAs and Errata, the document information pages also include the option to sign up for alerts for individual documents and to be involved in the development of the next edition.

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. 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 and extracted publications can be found in Chapter 2 and Annex V.

Chapter 1 Administration

1.1 Scope. This standard identifies the minimum job performance requirements (JPRs) for a health and safety officer (HSO) and an incident safety officer (ISO) for a fire department and contains minimum requirements for a fire service–related occupational safety, health, and wellness program and an incident management system to be used by emergency services to manage all emergency incidents.

1.2 Purpose. The purpose of this standard is to specify the minimum JPRs for service as a fire department HSO and ISO; specify the minimum requirements for an occupational safety, health, and wellness program for a fire department; and define and describe the essential elements of an incident management system.

1.3* Application. This standard can be applied as follows:

(1) Chapters 1 through 5, Annexes A through G, and Annex V constitute NFPA 1521, *Professional Qualifications for Health and Safety Officer and Incident Safety Officer.*

(2) Chapters 1 through 3, Chapters 6 through 16, and Annexes A, H, I, J, K, and V constitute NFPA 1500, *Fire Department Occupational Safety, Health, and Wellness Programs.*

(3) Chapters 1 through 3, Chapters 17 through 21, Annex A, and Annexes L through V constitute NFPA 1561, *Emergency Services Incident Management System and Command Safety.*

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 10, *Standard for Portable Fire Extinguishers,* 2022 edition.

NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, 2024 edition.

NFPA *101*®, *Life Safety Code*®, 2024 edition.

NFPA 470, *Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders,* 2022 edition.

NFPA 1006, *Standard for Technical Rescue Professional Qualifications,* 2021 edition.

NFPA 1010, *Standard for Professional Qualifications for Firefighters*, 2024 edition.

NFPA 1021, *Standard for Fire Officer Professional Qualifications,* 2020 edition.

NFPA 1026, *Standard for Incident Management Personnel Professional Qualifications*, 2024 edition.

NFPA 1030, *Standard for Professional Qualifications for Fire Prevention Program Positions*, 2024 edition.

NFPA 1033, *Standard for Professional Qualifications for Fire Investigator*, 2022 edition.

NFPA 1091, *Standard for Traffic Incident Management Personnel Professional Qualifications*, 2024 edition.

NFPA 1140, *Standards for Wildland Fire Protection*, 2022 edition.

NFPA 1225, *Standards for Emergency Services Communications*, 2022 edition.

NFPA 1403, *Standard on Live Fire Training Evolutions*, 2018 edition.

NFPA 1404, *Standard for Fire Service Respiratory Protection Training*, 2018 edition.

NFPA 1407, *Standard for Training Fire Service Rapid Intervention Crews*, 2020 edition.

NFPA 1451, *Standard for a Fire and Emergency Service Vehicle Operations Training Program*, 2018 edition.

NFPA 1581, *Standard on Fire Department Infection Control Program*, 2022 edition.

NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, 2022 edition.

NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Department Members*, 2022 edition.

NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*, 2022 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*, 2020 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*, 2020 edition.

NFPA 1851, *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2020 edition.

NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)*, 2019 edition.

NFPA 1855, *Standard on Selection, Care, and Maintenance of Protective Ensembles for Technical Rescue Incidents*, 2018 edition.

NFPA 1891, *Standard on Selection, Care, and Maintenance of Hazardous Materials, CBRN, and Emergency Medical Operations Clothing and Equipment*, 2022 edition.

NFPA 1900, *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances*, 2024 edition.

NFPA 1910, *Standard for the Inspection, Maintenance, Refurbishment, Testing, and Retirement of In-Service Emergency Vehicles and Marine Firefighting Vessels*, 2024 edition.

NFPA 1932, *Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground Ladders*, 2020 edition.

NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Incidents*, 2020 edition.

NFPA 1952, *Standard on Surface Water Operations Protective Clothing and Equipment*, 2021 edition.

NFPA 1960, *Standard for Fire Hose Connections, Spray Nozzles, Manufacturer's Design of Fire Department Ground Ladders, Fire Hose, and Powered Rescue Tools*, 2024 edition.

NFPA 1962, *Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances*, 2018 edition.

NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2018 edition.

NFPA 1975, *Standard on Emergency Services Work Clothing Elements*, 2019 edition.

NFPA 1977, *Standard on Protective Clothing and Equipment for Wildland Fire Fighting and Urban Interface Fire Fighting*, 2022 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, 2019 edition.

NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*, 2018 edition.

NFPA 1984, *Standard on Respirators for Wildland Fire-Fighting Operations and Wildland Urban Interface Operations*, 2022 edition.

NFPA 1986, *Standard on Respiratory Protection Equipment for Tactical and Technical Operations*, 2023 edition.

NFPA 1987, *Standard on Combination Unit Respirator Systems for Tactical and Technical Operations*, 2023 edition.

NFPA 1989, *Standard on Breathing Air Quality for Emergency Services Respiratory Protection*, 2019 edition.

NFPA 1990, *Standard for Protective Ensembles for Hazardous Materials and CBRN Operations*, 2022 edition.

NFPA 1999, *Standard on Protective Clothing and Ensembles for Emergency Medical Operations*, 2018 edition.

NFPA 2500, *Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services*, 2022 edition.

NFPA 3000®, *Standard for an Active Shooter/Hostile Event Response (ASHER) Program*, 2024 edition.

2.3 Other Publications.

2.3.1 ANSI Publications. American National Standards Institute, Inc., 25 West 43rd Street, 4th Floor, New York, NY 10036.

ANSI/ISEA Z87.1, *American National Standard for Occupational and Educational Eye and Face Protection Devices*, 2020.

ANSI/ASSE Z88.2, *Practices for Respiratory Protection*, 2015.

ANSI/ISEA 107, *American National Standard for High-Visibility Safety Apparel and Accessories*, 2020.

2.3.2 FEMA Publications. Federal Emergency Management Agency, US Department of Homeland Security, 500 C Street, SW, Washington, DC 20472.

FEMA/USFA FA-168, *Safety and Health Considerations for the Design of Fire and Emergency Medication Services Stations*, 2018.

2.3.3 IAFF Publications. International Association of Fire Fighters, 1750 New York Avenue, NW, Suite 300, Washington, DC 20006-5395

The IAFF/IAFC Wellness-Fitness Initiative Candidate Physical Ability Test (CPAT) Manual. 2nd edition, 2007. https://www.iaff.org/wp-content/uploads/2019/04/CPAT-2nd-Edition.pdf

2.3.4 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 325, *ANSI/CAN/UL Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems*, 2017.

2.3.5 US Government Publications. US Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401–0001.

Americans with Disabilities Act (ADA), 2008.

Centers for Disease Control and Prevention (CDC), *Basic Infection Prevention and Control Procedures*. https://www.cdc.gov/infectioncontrol/basics/standard-precautions.html

Fair Labor Standards Act (FLSA), 2011.

Homeland Security Presidential Directive 5, "Management of Domestic Incidents," February 28, 2003.

Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), 2009, revisions 1 and 2, May 2012.

NIOSH *Standard for Chemical, Biological, Radiological, and Nuclear (CBRN) Open Circuit Self-Contained Breathing Apparatus (SCBA)*, December 2001.

OSHA 3110, *Access to Medical and Exposure Records*, 2020.

Presidential Policy Directive 8, "National Preparedness," March 30, 2011.

Public Law 91-596, The Occupational Safety and Health Act of 1970.

Title 29, Code of Federal Regulations, Part 1910, Section 120(q)(3), "Procedures for handling emergency response."

Title 29, Code of Federal Regulations, Part 1910.120, "Hazardous Waste Operations and Emergency Response," August 27, 2002.

Title 29, Code of Federal Regulations, Part 1910.132, "Personal Protective Equipment."

Title 29, Code of Federal Regulations, Part 1910.134, "Respiratory Protection."

Title 29, Code of Federal Regulations, Part 1910.146, "Permit-Required Confined Spaces," April 16, 1999.

Title 29, Code of Federal Regulations, Part 1910.1020, "Toxic and Hazardous Substances."

Title 29, Code of Federal Regulations, Part 1910.1030, "Occupational Exposure to Bloodborne Pathogens," December 6, 1991.

Title 42, Code of Federal Regulations, Part 84, "Approval of Respiratory Protective Devices."

The William-Steiger Occupational Safety and Health Act of 1970.

2.3.6 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2020.

Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 2009.

2.4 References for Extracts in Mandatory Sections.

NFPA 1, *Fire Code*, 2024 edition.

NFPA 470, *Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders*, 2022 edition.

NFPA 600, *Standard on Facility Fire Brigades,* 2020 edition.

NFPA 1010, *Standard on Professional Qualifications for Firefighters*, 2024 edition.

NFPA 1026, *Standard for Incident Management Personnel Professional Qualifications,* 2018 edition.

NFPA 1140, *Standard for Wildland Fire Protection,* 2022 edition.

NFPA 1225, *Standard for Emergency Service Communications*, 2022 edition.

NFPA 1404, *Standard for Fire Service Respiratory Protection Training,* 2018 edition.

NFPA 1451, *Standard for a Fire and Emergency Service Vehicle Operations Training Program,* 2018 edition.

NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, 2022 edition.

NFPA 1660, *Standard on Emergency, Continuity, and Crisis Management: Preparedness, Response, and Recovery*, 2024 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*, 2020 edition.

NFPA 1900, *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances,* 2024 edition.

NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2018 edition.

NFPA 1977, *Standard on Protective Clothing and Equipment for Wildland Fire Fighting and Urban Interface Fire Fighting*, 2022 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, 2019 edition.

NFPA 1984, *Standard on Respirators for Wildland Fire-Fighting Operations and Wildland Urban Interface Operations*, 2022 edition.

NFPA 1987, *Standard on Combination Unit Respirator Systems for Tactical and Technical Operations*, 2023 edition.

NFPA 1990, *Standard for Protective Ensembles for Hazardous Materials and CBRN Operations,* 2022 edition.

NFPA 2500, *Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services,* 2022 edition.

NFPA 5000®, Building Construction and Safety Code®, 2024 edition.

Chapter 3 Definitions

3.1 General.

3.1.1 The definitions contained in this chapter shall apply to the terms used in this standard.

3.1.2 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.

3.1.3 *Merriam-Webster's Collegiate Dictionary,* 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

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

3.2.3 Shall. Indicates a mandatory requirement.

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

3.2.5 Standard. An NFPA standard, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the NFPA manuals of style. When used in a generic sense, such as in the phrases "standards development process" or "standards development activities," the term "standards" includes all NFPA standards, including codes, standards, recommended practices, and guides.

3.3 General Definitions.

3.3.1 Accident. An unplanned occurrence, which results in a loss such as unintended injury, illness, death, property damage, or damage to the environment.

3.3.2 Accountability. A system or process to track resources at an incident scene.

3.3.3 Active Cooling. See 3.3.36.1.

3.3.4 Advanced Life Support (ALS). See 3.3.111.1.

3.3.5 Aerial Device. An aerial ladder, elevating platform, or water tower that is designed to position personnel, handle materials, provide continuous egress, or discharge water. [**1900,** 2024]

3.3.6 Agency Representative. An individual assigned to an incident from an assisting or cooperating agency who reports to the liaison officer and who has been delegated authority to make decisions on matters affecting that agency's participation at the incident.

3.3.7* Air Transfer. The process of transferring air from one SCBA cylinder to another SCBA cylinder of the same rated pressure capacity by connecting them together with properly designed fittings and a high-pressure transfer line.

3.3.8* Aircraft Rescue and Firefighting. The firefighting actions taken to rescue persons and to control or extinguish fire involving or adjacent to aircraft on the ground.

3.3.9* Area Command. An organization established to oversee the management of multiple incidents that are each being handled by an incident command system (ICS) organization, or to oversee the management of large or multiple incidents to which several incident management teams have been assigned.

3.3.10* Assistant. Title for subordinates of the command staff positions; this title indicates a level of technical capability, qualifications, and responsibility subordinate to the primary functions.

3.3.11 Atmosphere.

3.3.11.1* *Hazardous Atmosphere.* Any atmosphere that is oxygen deficient or that contains a toxic or disease-producing contaminant.

3.3.11.2 *Oxygen-Deficient Atmosphere.* Air atmospheres containing less than 19.5 percent oxygen by volume at one standard atmosphere pressure.

3.3.12* Base. The location where the primary logistics functions are coordinated and administered.

3.3.13 Basic Life Support (BLS). See 3.3.111.2.

3.3.14 Biological Terrorism Agents. Liquid or particulate agents that can consist of a biologically derived toxin or pathogen to inflict lethal or incapacitating casualties, generally on a civilian population as a result of a terrorist attack. [**1990,** 2022]

3.3.15 Branch. See 3.3.172.1.

3.3.16 Branch Director. See 3.3.173.1.

3.3.17* Candidate. A person who has submitted an application to become a member of the fire department.

3.3.18 CBRN. An abbreviation for chemicals, biological agents, and radiological particulate hazards.

3.3.19* Chemical Flash Fire. The ignition of a flammable and ignitible vapor or gas that produces an outward expanding flame front as those vapors or gases burn. This burning and expanding flame front, a fireball, will release both thermal and kinetic energy to the environment. [**1990,** 2022]

3.3.20 Chemical Terrorism Agents. Liquid, solid, gaseous, and vapor chemical warfare agents and toxic industrial chemicals used to inflict lethal or incapacitating casualties, generally on a civilian population as a result of a terrorist attack. [**1990,** 2022]

3.3.21* Clear Text/Plain Language. The use of plain language in radio communications transmissions.

3.3.22 Closed-Circuit SCBA. See 3.3.160.1.

3.3.23 Cold Zone. See 3.3.35.1.

3.3.24 Collapse Zone. See 3.3.35.2.

3.3.25 Combination Unit Respirator. A respirator that employs technology of two or more different types of respiratory protection devices, comprising at least an open-circuit SCBA, and which provides the wearer a method of mode selection in an operational environment. [**1987,** 2023]

3.3.26 Command Radio Channel. See 3.3.140.1.

3.3.27* Command Staff. The command staff consists of the public information officer, safety officer, and liaison officer who report directly to the incident commander and are responsible for functions in the incident management system that are not a part of the function of the line organization.

3.3.28 Communicable Disease. See 3.3.45.1.

3.3.29 Communications Center. A building or a portion of a building that is specifically configured for the primary purpose of providing emergency communications services or public safety answering point (PSAP) services to one or more public safety agencies under the authority or authorities having jurisdiction. [**1225,** 2022]

3.3.30* Company. A group of members (1) under the direct supervision of an officer; (2) trained and equipped to perform assigned tasks; (3) usually organized and identified as engine companies, ladder companies, rescue companies, squad companies, or multi-functional companies; (4) operating with one piece of fire apparatus (pumper, aerial fire apparatus, elevating platform, quint, rescue, squad, ambulance) except where multiple apparatus are assigned that are dispatched and arrive together, continuously operate together, and are

managed by a single company officer; (5) arriving at the incident scene on fire apparatus.

3.3.31* Confined Space. An area large enough and so configured that a member can bodily enter and perform assigned work but which has limited or restricted means for entry and exit and is not designed for continuous human occupancy.

3.3.32* Contaminants. Harmful, irritating, or nuisance material foreign to the normal atmosphere.

3.3.33 Contaminated/Contamination. The presence or the reasonably anticipated presence of contaminants on an item or surface.

3.3.34 Contamination Control Areas Within Fire Department Facilities. Areas inside a facility that are designated to indicate the likelihood of exposure to contaminants.

3.3.34.1 ***Contamination Control Areas - Green.*** Clean spaces in the facility such as living, kitchen, dormitory, etc., where contamination is not expected to occur.

3.3.34.2 ***Contamination Control Area - Red.*** Spaces within a facility that are likely to be exposed to contaminants.

3.3.34.3 ***Contamination Control Area - Yellow.*** Transition spaces within a facility between the contaminated area (Red Zone) and the clean area (Green Zone), where contamination control takes place.

3.3.35 Control Zones. The areas at an incident that are designated based upon safety and the degree of hazard.

3.3.35.1 ***Cold Zone.*** The control zone of an incident that contains the command post and such other support functions as are deemed necessary to control the incident.

3.3.35.2 ***Collapse Zone.*** The area that is exposed to trauma, debris, and/or thrust should a building or part of a building collapse.

3.3.35.3 ***Environmental Factors.*** A collection of characteristics such as weather, terrain, access/egress pathways, structural components, smoke production, fire spread potential, and other physical features at a given incident scene.

3.3.35.4 ***Hostile Fire Event.*** A general descriptor for hazardous fire conditions, including flashover, backdraft, smoke-explosion, flameover, and rapid fire spread.

3.3.35.5 ***Hot Zone.*** The control zone immediately surrounding a hazardous area, which extends far enough to prevent adverse effects to personnel outside the zone.

3.3.35.6 ***No-Entry Zone.*** Those areas at an incident scene that no person(s) are allowed to enter, regardless of what personal protective equipment (PPE) they are wearing due to dangerous conditions.

3.3.35.7 ***Warm Zone.*** The control zone outside the hot zone where personnel and equipment decontamination and hot zone support takes place.

3.3.36 Cooling.

3.3.36.1 ***Active Cooling.*** The process of using external methods or devices (e.g., hand and forearm immersion, misting fans, ice vests) to reduce elevated core body temperature.

3.3.36.2 ***Passive Cooling.*** The process of using natural evaporative cooling (e.g., sweating, doffing personal protective equipment) to reduce elevated core body temperature.

3.3.37 Crew. A team of two or more firefighters.

3.3.38* Crew Resource Management (CRM). A program focused on improved situational awareness, sound critical decision-making, effective communication, proper task allocation, and successful teamwork and leadership.

3.3.39* Cryogenic Liquid. A fluid produced or stored at very low temperatures.

3.3.40 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.

3.3.41 Decontamination. The act of removing or neutralizing contaminants by a mechanical, chemical, thermal, or combined process.

3.3.42 Defensive Operations. See 3.3.126.1.

3.3.43* Department Operations Center (DOC). An operations center established by an individual agency to manage that agency's resources and coverage within the jurisdiction.

3.3.44* Deputy. A fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task.

3.3.45 Disease.

3.3.45.1* ***Communicable Disease.*** A disease that can be transmitted from one person to another.

3.3.45.2 ***Infectious Disease.*** An illness or disease resulting from invasion of a host by disease-producing organisms such as bacteria, viruses, fungi, or parasites.

3.3.46 Dispatch Radio Channel. See 3.3.140.2.

3.3.47 Division. See 3.3.172.2.

3.3.48 Division Supervisor. See 3.3.173.2.

3.3.49 Drug. Any substance, chemical, over-the-counter medication, or prescribed medication that can affect the performance of the firefighter.

3.3.50 Electronic Data Protocol. A process for managing and transmitting electronic data that may include computer based systems; alarm systems; security systems; video; regional, local, site, or building management; and information systems.

3.3.51 Emergency Incident. See 3.3.95.1.

3.3.52 Emergency Medical Care. The provision of treatment to patients, including first aid, cardiopulmonary resuscitation, basic life support (first responder or EMT level), advanced life support (paramedic level), and other medical procedures that occur prior to arrival at a hospital or other health care facility.

3.3.53 Emergency Medical Services. The provision of treatment, such as first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other pre-hospital procedures including ambulance transportation, to patients.

3.3.54 Emergency Operations. See 3.3.126.2.

3.3.55* Emergency Operations Center (EOC). The physical location at which the coordination of information and resources to support incident management (on-scene operations) activities normally takes place.

3.3.56* Emergency Services Organization (ESO). Any public, private, governmental, or military organization that provides emergency response and other related activities, whether for profit, not for profit, or government owned and operated.

3.3.57 Eye Protection. See 3.3.134, Primary Eye Protection.

3.3.58* Faceshield. A protective device commonly intended to shield the wearer's face, or portions thereof, in addition to the eyes from certain hazards, depending on faceshield type.

3.3.59 Facility. See 3.3.64, Fire Department Facility.

3.3.60 Facility Fire Brigade. An organized group of employees at a facility who are knowledgeable, trained, and skilled in at least basic firefighting operations, and whose full-time occupation might be the provision of fire suppression and related activities for their employer. [**600,** 2020]

3.3.61 Fire Apparatus. A vehicle designed to be used under emergency conditions to transport personnel and equipment, and to support the suppression of fires and mitigation of other hazardous situations. [**1900,** 2024]

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

3.3.63* Fire Department. An organization providing rescue, fire suppression, and related activities, including any public, governmental, private, industrial, or military organization engaging in this type of activity.[**1010**, 2024]

3.3.64* Fire Department Facility. Any building or area owned, operated, occupied, or used by a fire department on a routine basis.

3.3.65 Fire Department Member. See 3.3.113, Member.

3.3.66 Fire Department Physician. A licensed doctor of medicine or osteopathy who has been designated by the fire department to provide professional expertise in the areas of occupational safety and health as they relate to emergency services. [**1582,** 2022]

3.3.67 Fire Department Safety Officer. See 3.3.156, Safety Officer.

3.3.68 Fire Department Vehicle. Any vehicle, including fire apparatus, operated by a fire department. [**1010,** 2024]

3.3.69 Firefighting.

3.3.69.1* *Proximity Firefighting.* Specialized firefighting operations that can include the activities of rescue, fire suppression, and property conservation at incidents involving fires producing high levels of radiant heat as well as conductive and convective heat. [**1971,** 2018]

3.3.69.2 *Structural Firefighting.* The activities of rescue, fire suppression, and property conservation in buildings or other structures, vehicles, rail cars, marine vessels, aircraft, or like properties. [**1710,** 2020]

3.3.69.3 *Wildland Firefighting.* The activities of fire suppression and property conservation in woodlands, forests, grasslands, brush, prairies, and other such vegetation, or any combination of vegetation, that is involved in a fire situation but is not within buildings or structures. [**1977,** 2022]

3.3.70 Fire Shelter. An item of protective equipment configured as an aluminized tent utilized for protection, by means of reflecting radiant heat, in a fire entrapment situation.

3.3.71* Fire Suppression. The activities involved in controlling and extinguishing fires.

3.3.72* Flame Resistance (Protective Apparel). The property of a material whereby combustion is prevented, terminated, or inhibited following application of a flaming or non-flaming source of ignition, with or without subsequent removal of the ignition source.

3.3.73 Fully Enclosed Personnel Area. A driver or passenger compartment on the fire apparatus that provides total enclosure on all sides, top, and bottom and has positive latching on all access doors. [**1900,** 2024]

3.3.74 General Staff. Responders that serve as section chiefs of the operations, planning, logistics, and finance/administration sections.

3.3.75 Goggle. A protective device intended to fit the face surrounding the eyes in order to shield the eyes from certain hazards, depending on goggle type.

3.3.76* Gross Decontamination. A phase of the decontamination process where significant reduction of the amount of surface contamination takes place as soon as possible, most often accomplished by mechanical removal of the contaminant or initial rinsing from handheld hose lines, emergency showers, or other nearby sources of water.

3.3.77 Group. See 3.3.172.3.

3.3.78 Group Supervisor. See 3.3.173.3.

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

3.3.80 Hazardous Area. An area of a structure or building that poses a degree of hazard greater than that normal to the general occupancy of the building or structure. [**5000,** 2024]

3.3.81 Hazardous Atmosphere. See 3.3.11.1.

3.3.82 Hazardous Energy Sources. Electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, thermal, gravitational, or any other form of energy that could cause injury due to the unintended motion energizing, start-up, or release of such stored or residual energy in machinery, equipment, piping, pipelines, or process systems.

3.3.83 Hazardous Material. A substance (solid, liquid, or gas) or energy that when released is capable of creating harm to people, the environment, and property, including weapons of mass destruction (WMD) as defined in 18 US Code, Section 2332a, as well as any other criminal use of hazardous materials, such as illicit labs, environmental crimes, or industrial sabotage. [**470,** 2022]

3.3.84 Hazardous Materials Operations. See 3.3.126.3.

3.3.85 Health and Fitness Coordinator. The person who, under the supervision of the fire department physician, has been designated by the department to coordinate and be responsible for the health and fitness programs of the department.

3.3.86 Health and Safety Management System. A management system that integrates and directs the risk management process to enable an organization to control and/or reduce the frequency and severity of the risks associated with fire department emergency and nonemergency operations in order to realize the fire department's health and safety goals. Health and safety programs are elements of a health and safety management system.

3.3.87* Health and Safety Officer (HSO). The member of the fire department assigned and authorized by the fire chief as the manager of the safety, health, and wellness program. *(See 3.3.156.1.)*

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

3.3.89 Health Hazard. Any property of a material that either directly or indirectly can cause injury, illness, or incapacitation, either temporary or permanent, from exposure by contact, inhalation, or ingestion.

3.3.90* High-Rise Building. A building where the floor of an occupiable story is greater than 75 ft (23 m) above the lowest level of fire department vehicle access. [**5000**, 2024]

3.3.91 Hot Zone. See 3.3.35.5.

3.3.92* HSPD-5. The abbreviation for Homeland Security Presidential Directive/HSPD-5, "Management of Domestic Incidents."

3.3.93 Immediately Dangerous to Life or Health (IDLH). Any condition that would pose an immediate or delayed threat to life, cause irreversible adverse health effects, or interfere with an individual's ability to escape unaided from a hazardous environment. [**2500,** 2022]

3.3.94 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.

3.3.95 Incident.

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

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

3.3.95.3 ***Traffic Incident.*** An emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic.

3.3.96* Incident Action Plan. The objectives reflecting the overall incident strategy, tactics, risk management, and member safety that are developed by the incident commander. Incident action plans are updated throughout the incident.

3.3.97 Incident Command System. See 3.3.99, Incident Management System (IMS).

3.3.98* Incident Commander (IC). The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. [**470,** 2022]

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

3.3.100* Incident Management Team (IMT). The incident commander and appropriate command and general staff personnel assigned to an incident.

3.3.101 Incident Safety Officer (ISO). See 3.3.156.2.

3.3.102 Incident Safety Plan. Hazard control strategies developed by the incident safety officer to address the incident action plan and the type of incident encountered.

3.3.103* Incident Scene. The location where activities related to a specific incident are conducted.

3.3.104 Incident Termination. The conclusion of emergency service operations at the scene of an incident, usually the departure of the last unit from the scene.

3.3.105* Infection Control Program. The fire department's formal policy and implementation of procedures relating to the control of infectious and communicable disease hazards where employees, patients, or the general public could be exposed to blood, body fluids, or other potentially infectious materials in the fire department work environment.

3.3.106 Infectious Disease. See 3.3.45.2.

3.3.107 Intelligence Function. The analysis and sharing of national security and other types of classified information as well as other operational information such as risk assessments, medical surveillance, weather information geospatial data, structural designs, toxic contaminants levels, and utilities and public works data.

3.3.108 Interface Component. Any material, part, or subassembly used in the construction of the compliant product that provides limited protection to interface areas.

3.3.109 Liaison Officer. A member of the command staff, responsible for coordinating with representatives from cooperating and assisting agencies.

3.3.110 Life Safety Rope. Rope dedicated solely for the purpose of supporting people during rescue, firefighting, other emergency operations, or during training evolutions.

3.3.111 Life Support.

3.3.111.1 ***Advanced Life Support (ALS).*** Emergency medical treatment beyond basic life support level as defined by the medical authority having jurisdiction.

3.3.111.2 ***Basic Life Support (BLS).*** Emergency medical treatment at a level as defined by the medical authority having jurisdiction.

3.3.112* Liquefied Gas. A gas that, under its charged pressure, is partially liquid at 70°F (21°C).

3.3.113* Member. A person involved in performing the duties and responsibilities of a fire department, under the auspices of the organization.

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

3.3.115 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 firefighters' association.

3.3.116 Mobilization Center. An off-incident location at which emergency service personnel and equipment are temporarily located pending assignment, release, or reassignment.

3.3.117* Multi-Agency Coordination Systems (MACS). A system that provides the architecture to support coordination for incident prioritization, critical resource allocation, communications systems integration, and information coordination.

3.3.118* National Incident Management System (NIMS). A system mandated by HSPD-5 that provides a consistent, nationwide approach for federal, state, local, and tribal governments; the private sector; and nongovernmental organizations (NGOs) to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity.

3.3.119* National Response Framework. A framework that represents the guiding principles that enable all responders to prepare for and provide a unified national response to disasters and emergencies — from the smallest incident to the largest catastrophe.

3.3.120 No-Entry Zone. See 3.3.35.6.

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

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

3.3.123* Occupational Safety and Health Program. An occupation specific program, implemented to reduce the risks associated with the occupation, that outlines the components of a program and the roles and responsibilities of the fire department and its members.

3.3.124 Offensive Operations. See 3.3.126.4.

3.3.125 Operational Factors. The collection of strategic and tactical assignments, positions, equipment, resources, and processes utilized by incident personnel.

3.3.126 Operations.

3.3.126.1* *Defensive Operations.* Actions that are intended to control a fire by limiting its spread to a defined area, avoiding the commitment of personnel and equipment to dangerous areas.

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

3.3.126.3 *Hazardous Materials Operations.* All activities performed at the scene of a hazardous materials incident that expose fire department members to the dangers of hazardous materials.

3.3.126.4 *Offensive Operations.* Actions generally performed in the interior of involved structures that involve a direct attack on a fire to directly control and extinguish the fire.

3.3.126.5* *Special Operations.* Those emergency incidents to which the fire department responds that require specific and advanced training and specialized tools and equipment.

3.3.127 Oxygen-Deficient Atmosphere. See 3.3.11.2.

3.3.128* Particulates. Solid matter that is dispersed in air as a mixture.

3.3.129 Passive Cooling. See 3.3.36.2.

3.3.130 Peer Supporter. Trained members of the fire service who talk with other peers about behavioral health concerns and connect members with helpful services.

3.3.131 Personnel Accountability System. A system that readily identifies both the location and function of all members operating at an incident scene.

3.3.132* Planned Event. An occurrence that allows for the development of an incident action plan prior to the occurrence.

3.3.133* Power-Assisted Patient Cot. An elevated patient conveyance device on which the primary patient is transported, also known as a transporter, gurney, stretcher, and carrier, engineered and manufactured with an automated and powered lifting system that is integrated with an ambulance mounted self-loading system.

3.3.134 Primary Eye Protection. A protective device specifically intended to shield the eyes from certain hazards while permitting vision. *(See also 3.3.58, Faceshield; 3.3.75, Goggle; and 3.3.163, Spectacles.)*

3.3.135 Procedure. An organizational directive issued by the authority having jurisdiction or by the department that establishes a specific policy that must be followed.

3.3.136* Protective Ensemble. Multiple elements of compliant protective clothing and equipment that when worn together provide protection from some risks, but not all risks, of emergency incident operations.

3.3.137 Proximity Firefighting. See 3.3.69.1.

3.3.138* Public Information Officer. A member of the command staff responsible for interfacing with the public and media or with other agencies with incident-related information requirements.

3.3.139 Qualified Person. A person who, by possession of a recognized degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems related to a particular subject matter, the work, or project. [**1451,** 2018]

3.3.140* Radio Channels.

3.3.140.1 ***Command Radio Channel.*** A radio channel designated by the emergency services organization that is provided for communications between the incident commander and the division/group supervisors or branch directors during an emergency incident.

3.3.140.2 ***Dispatch Radio Channel.*** A radio channel designated by the emergency services organization that is provided for communications between the communication center and the incident commander or single resource.

3.3.140.3* ***Tactical Radio Channel.*** A radio channel designated by the emergency services organization that is provided for communications between resources assigned to an incident and the incident commander.

3.3.141* Rapid Intervention Crew/Company (RIC). A dedicated crew of at least one officer and three members, positioned outside the IDLH, trained and equipped as specified in NFPA 1407, who are assigned for rapid deployment to rescue lost or trapped members. [**1710,** 2020]

3.3.141.1 ***Initial Rapid Intervention Crew (IRIC).*** Two members of the initial attack crew, positioned outside the IDLH, trained and equipped as specified in NFPA 1407, who are assigned for rapid deployment (i.e., two in/two out) to rescue lost or trapped members. [**1710**, 2020]

3.3.142 Recovery. Those activities directed at locating and removing persons who have obviously or likely sustained fatal consequences from the incident.

3.3.143* Rehabilitation. An intervention designed to mitigate against the physical, physiological, and emotional stress of firefighting in order to sustain a member's energy, improve performance, and decrease the likelihood of on-scene injury or death.

3.3.144 Related Activities. Any and all functions that fire department members can be called upon to perform in the execution of their duties.

3.3.145 Rescue. Those activities directed at locating endangered persons at an emergency incident, removing those persons from danger, treating the injured, and providing for transport to an appropriate health care facility. *(See also 3.3.177, Technical Search and Rescue.)*

3.3.146 Rescue Incident. See 3.3.95.2.

3.3.147 Rescue Task Force. A resource comprised of fire department and/or EMS personnel together with law enforcement personnel providing force protection, assigned and deployed in a portion of the scene that does not pose an immediate threat of active violence, but has not been deemed to be free of all possible threats of violence, to provide lifesaving interventions and rapid extraction of victims during an active violence incident.

3.3.148 Resiliency. The process of preparing for and adapting well to adversity, tragedy, threats, or significant sources of stress.

3.3.149 Resources. All personnel and major items of equipment that are available, or potentially available, for assignments to incidents for which status is maintained.

3.3.150* Respiratory Protection Equipment (RPE). Devices that are designed to protect the respiratory system against exposure to gases, vapors, or particulates. [**1404,** 2018]

3.3.151 Responder. A person who has responsibility to respond to emergencies and deliver services such as firefighting, law enforcement, water rescue, emergency medical, emergency management, public health, public works, and other public services.

3.3.152 Risk. A measure of the probability and severity of adverse effects that result from exposure to a hazard. [**1451,** 2018]

3.3.153 Risk Assessment. The process of identifying threats and hazards to life, property, operations, the environment, and entities, and the analysis of probabilities, vulnerabilities, and impacts. [**1660,** 2024]

3.3.154* Risk Management. Identification and analysis of exposure to hazards, selection of appropriate techniques to control exposures, implementation of chosen techniques, and monitoring of results to ensure the health and safety of members.

3.3.155 Risk Management Plan. A risk management plan is a written document that evaluates all the activities typically performed by a fire department and identifies the risk associated with those activities.

3.3.156* Safety Officer (SO). A generic title given to a member within a fire department or emergency service organization who performs the functions of a health and safety officer, an incident safety officer, or who serves as an assistant to a person in either of those positions.

3.3.156.1* ***Health and Safety Officer (HSO).*** The individual assigned and authorized by the fire chief as the manager of the health and safety program.

3.3.156.1.1 ***Assistant Health and Safety Officer.*** The individual assigned and authorized by the AHJ to assist the fire department HSO in the performance of the duties and responsibilities of the HSO.

3.3.156.2* ***Incident Safety Officer (ISO).*** A member of the command staff responsible for monitoring and assessing safety hazards or unsafe situations and for developing measures for ensuring personnel safety.

3.3.156.2.1 ***Assistant Incident Safety Officer.*** A member of the fire department appointed to respond or assigned at an incident scene by the IC to assist the ISO in the performance of the ISO functions.

3.3.157 SCBA. Abbreviation for self-contained breathing apparatus. *[See 3.3.160, Self-Contained Breathing Apparatus (SCBA).]* [**1981,** 2019]

3.3.158 Seat Belt. A two-point lap belt, a three-point lap/shoulder belt, or a four-point lap/shoulder harness for vehicle occupants designed to limit their movement in the event of an accident, rapid acceleration, or rapid deceleration by securing individuals safely to a vehicle in a seated position. *(See also 3.3.183, Vehicle Safety Harness.)*

3.3.159* Section. The organizational level having responsibility for a major functional area of incident management, such as operations, planning, logistics, finance/administration, and intelligence (if established).

3.3.160 Self-Contained Breathing Apparatus (SCBA). An atmosphere-supplying respirator that supplies a respirable air atmosphere to the user from a breathing air source that is independent of the ambient environment and designed to be carried by the user. [**1981,** 2019]

3.3.160.1 ***Closed-Circuit SCBA.*** A recirculation-type SCBA in which the exhaled gas is rebreathed by the wearer after the carbon dioxide has been removed from the exhalation gas and the oxygen content within the system has been restored from sources such as compressed breathing air, chemical oxygen, and liquid oxygen, or compressed gaseous oxygen. [**1981,** 2019]

3.3.161 Service Test. The regular, periodic inspection and testing of apparatus and equipment, according to an established schedule and guideline, to ensure that they are in safe and functional operating condition.

3.3.162* Special Operations. Those emergency incidents to which the fire department responds that require specific and advanced training and specialized tools and equipment.

3.3.163* Spectacles. A protective device intended to shield the wearer's eyes from certain hazards depending on the spectacle type.

3.3.164* Staff Aide. A responder assigned to a supervisor to assist with the logistical, tactical, and accountability functions at an incident.

3.3.165 Staging. A specific function where resources are assembled in an area at or near the incident scene to await instructions or assignments.

3.3.166 Standard Operating Guideline. A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely, which can be varied due to operational need in the performance of designated operations or actions.

3.3.167* Standard Operating Procedure (SOP). A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely for the performance of designated operations or actions.

3.3.168 Strategy. The general plan or direction selected to accomplish incident objectives. [**1140,** 2022]

3.3.169 Strike Team. A specified combination of the same kind and type of resources with common communications and a leader.

3.3.170 Structural Firefighting. See 3.3.69.2.

3.3.171 Supervisor. An emergency services responder who has responsibility for overseeing the performance of other responders assigned to a specific division or group.

3.3.172 Supervisory Level.

3.3.172.1* ***Branch.*** A supervisory level established in either the operations or logistics function to provide a span of control.

3.3.172.2* ***Division.*** A supervisory level established to divide an incident into geographic areas of operations.

3.3.172.3* ***Group.*** A supervisory level established to divide the incident into functional areas of operation.

3.3.173 Supervisory Positions.

3.3.173.1 ***Branch Director.*** A person in a supervisory level position in either the operations or logistics function to provide a span of control.

3.3.173.2 ***Division Supervisor.*** A person in a supervisory level position responsible for a specific geographic area of operations at an incident.

3.3.173.3 ***Group Supervisor.*** A person in a supervisory level position responsible for a functional area of operation.

3.3.174 Tactical Level Management Component (TLMC). A management unit identified in an incident management system commonly known as "division" or "group."

3.3.175 Tactical Radio Channel. See 3.3.140.3.

3.3.176 Task Force. A combination of different kinds or types of resources with common communications and a leader that could be pre-established and sent to an incident or formed at an incident.

3.3.177 Technical Search and Rescue. The application of special knowledge, skills, and equipment to resolve unique and/or complex search and rescue situations. [**2500,** 2022]

3.3.178* Technical Specialist. A person with specialized skills, training, and/or certification who can be used anywhere within the incident management system organization where their skills might be required.

3.3.179 Traffic Incident. See 3.3.95.3.

3.3.180* Unified Command. An application of the incident command system (ICS) that allows all agencies with jurisdictional responsibility for an incident or planned event, either geographical or functional, to manage an incident or planned event by establishing a common set of incident objectives and strategies.

3.3.181 Unit. An organizational element having responsibility for a specific function within the operations, planning, logistics, or finance/administration sections of an incident command system.

3.3.182 Upstream/Downstream Traffic. Traffic that is entering or approaching the incident scene (upstream); traffic that is departing or past the incident (downstream).

3.3.183 Vehicle Safety Harness. A restraint device for vehicle occupants designed to limit their movement in the event of an accident, rapid acceleration, or rapid deceleration by securing individuals safely to a vehicle either in a seated position or tethered to the vehicle. *(See also 3.3.158, Seat Belt.)*

3.3.184 Warm Zone. See 3.3.35.7.

3.3.185 Wildland Firefighting. See 3.3.69.3.

3.3.186 Wildland Firefighting Respirator. A respirator that has been certified for providing respiratory protection during wildland firefighting operations by NIOSH under 42 CFR 84, "Approval of Respiratory Protective Devices," and certified as compliant with NFPA 1984. [**1984,** 2022]

3.3.187* Zone. A defined geographic area or function utilized to support the management of an incident.

Chapter 4 Health and Safety Officer (NFPA 1521)

4.1 Administration

4.1.1 Scope. Chapters 4 and 5 identify the minimum job performance requirements (JPRs) for a health and safety officer (HSO) and an incident safety officer (ISO) for a fire department.

4.1.2* Purpose. The purpose of Chapters 4 and 5 is to specify the minimum JPRs for service as a fire department HSO and ISO.

4.1.2.1 Chapters 4 and 5 shall define HSO and ISO for a fire department.

4.1.2.2 The intent of Chapters 4 and 5 shall be to ensure that personnel serving as HSOs and ISOs for a fire department are qualified.

4.1.2.3* Chapters 4 and 5 shall not address organization or management responsibility.

4.1.2.4 It is not the intent of Chapters 4 and 5 to restrict any jurisdiction from exceeding or combining these minimum requirements.

4.1.2.5 JPRs for each level or position are the tasks personnel shall be able to perform to carry out the job duties. *(See Annex B.)*

4.1.2.6* Personnel who perform HSO and/or ISO duties and responsibilities relating to emergency responder health, safety, and wellness shall remain current with required knowledge, required skills, and individual JPRs addressed for each position of qualification, in order to maintain proficiency and competency with the JPRs covered in Chapters 4 and 5.

4.1.2.7 The JPRs shall be accomplished in accordance with the requirements of the authority having jurisdiction (AHJ) and Chapters 6 through 21.

4.1.3 Application. The application of Chapters 4 and 5 is to specify which requirements within the document shall apply to an HSO and ISO for a fire department.

4.1.3.1 The requirements of Chapters 4 and 5 shall apply to members serving in organizations providing rescue, fire suppression, emergency medical services, hazardous materials mitigation, special operations, and other emergency services, including public, military, private, and industrial fire departments.

4.1.3.2 Chapters 4 and 5 shall not apply to members serving in facility fire brigades, which might also be known as emergency brigades, emergency response teams, fire teams, plant emergency organizations, or mine emergency response teams.

4.1.3.3 The JPRs shall be accomplished in accordance with the requirements of the AHJ and all applicable NFPA standards.

4.1.3.4 It shall not be required that the JPRs be mastered in the order in which they appear. The AHJ shall establish instructional priority and the training program content to prepare personnel to meet the JPRs of this standard. *(See Annex B.)*

4.1.3.5* Performance of each requirement of Chapters 4 and 5 shall be evaluated by personnel approved by the AHJ.

4.1.3.6 The JPRs for each level shall be completed in accordance with recognized practices and procedures or as defined by law or by the AHJ.

4.1.3.7 Personnel assigned the duties in Chapter 4 shall meet all the requirements defined in Chapter 4 prior to being qualified. Personnel assigned the duties in Chapter 5 shall meet all the requirements defined in Chapter 5 prior to being qualified.

4.1.3.8 The AHJ shall provide personal protective clothing and the equipment necessary to conduct assignments.

4.1.3.9 JPRs involving exposure to products of combustion shall be performed in approved PPE.

4.1.3.10 Prior to training to meet the requirements of Chapters 4 and 5, personnel shall meet the following requirements:

(1) Educational requirements established by the AHJ
(2) Age requirements established by the AHJ
(3)* Medical requirements as developed and validated by the AHJ and in compliance with applicable legal requirements
(4) Job-related physical performance requirements as developed and validated by the AHJ

4.1.3.11 Wherever in Chapters 4 and 5 the terms *rules*, *regulations*, *policies*, *procedures*, *supplies*, *apparatus,* or *equipment* are referred to, it is implied that they are those of the AHJ.

4.1.4 Units. In Chapters 4 and 5, values for measurement are followed by an equivalent in SI units, but only the first stated value shall be regarded as the requirement. Equivalent values in SI units shall not be considered as the requirement, as these values can be approximate. *(See Table 4.1.4.)*

4.2 General.

4.2.1 The fire department health and safety officer (HSO) shall meet the job performance requirements (JPRs) defined in Sections 4.3 through 4.13.

4.2.2* A fire department HSO shall recuse himself/herself from any investigatory process where a conflict of interest exists.

4.3* Risk Management. This duty involves developing and managing an organization's risk management plan, implementing safety provisions of the plan with training and education programs, developing an operational risk management plan, and developing a plan for the treatment and transport of an injured or ill member to a medical or health care facility.

4.3.1* Develop an organizational risk management plan that addresses the risks specified in Chapter 6, given injury reports, vehicle incident reports, near-miss or equipment malfunction or failure reports, and other reports as determined by the AHJ, so that risks are identified, categorized, and control measures are implemented and monitored.

Table 4.1.4 US-to-SI Conversions

Quantity	US Unit/Symbol	SI Unit/Symbol	Conversion Factor
Length	inch (in.)	millimeter (mm)	1 in. = 25.4 mm
	foot (ft)	meter (m)	1 ft = 0.305 m
Area	square foot (ft^2)	square meter (m^2)	1 ft^2 = 0.0929 m^2

(A) Requisite Knowledge. Standard operating procedures/guidelines (SOP/Gs), regulations and standards as determined by AHJ; fire behavior, building construction, proper use and performance limitations of protective clothing and protective equipment; national and local injury and health data.

(B) Requisite Skills. Ability to identify risks; develop goals, objectives, and action plans to manage those risks; analyze data; perform cost-benefit analysis.

4.3.2* Manage an organizational risk management plan, given an organization, organizational activities, a risk management plan and a communications method for distributing the plan, so that the plan is communicated to the members of the organization, elements of the plan are integrated into the organizational operation, needed modifications are identified, and the modifications are implemented.

(A) Requisite Knowledge. SOP/Gs, regulations and standards as determined by the AHJ; fire behavior, building construction, proper use and performance limitations of protective clothing and protective equipment, hazards associated with various types of emergency and nonemergency locations; national and local injury and health statistics; and communications methods used by the AHJ.

(B) Requisite Skills. Ability to identify risks, develop goals, objectives, and action plans to manage those risks; perform cost-benefit analysis; compile and analyze data, obtain feedback from personnel, and observe performance and behavior changes; revise plans and communicate the revisions.

4.3.3* Implement safety provisions of the organization's risk management plan into training and education programs, given an organizational risk management plan, a training or education program, and organizational goals and objectives, so that the organization's risk management program is incorporated into the training and education programs, records are maintained, and the training and education programs meet the stated operational safety goals and objectives for emergency and nonemergency incidents.

(A) Requisite Knowledge. AHJ risk management plan; data analysis from AHJ safety and incident reports; local, state, and federal safety programs; organizations with safety programs; outreach sources available from professional organizations for safety development programs; risks associated with administration, facilities, training, vehicle operations (both emergency and nonemergency); proper use and performance limitations of protective clothing and protective equipment; operations at emergency incidents, operations at nonemergency incidents, and other related activities.

(B) Requisite Skills. Ability to educate and integrate health and safety aspects of the risk management program into training and education programs; risk identification, risk evaluation, establishment of priorities for action (frequency and severity), risk control techniques, and risk management monitoring (process and outcome evaluations).

4.3.4* Develop an operational risk management plan given the requirements of Chapter 10, so that an incident management system (IMS) that meets the requirements of Chapters 17 through 21 is established with written SOP applying to all members involved in emergency operations.

(A) Requisite Knowledge. IMS for the AHJ; Chapters 17 through 21 of this standard; Homeland Security Presidential Directive 5 (National Incident Management System) and Presidential Policy Directive 8 (National Response Framework); other applicable federal, state, and local regulations and applicable NFPA standards.

(B) Requisite Skills. Utilize the IMS at all emergency incidents, drills, and exercises; management of the incident and the safety of all members involved at the scene by the IC; divide the incident into tactical-level management components as incidents escalate in size and complexity, assign an ISO to assess the incident scene for hazards or potential hazards; establish the organization of the command staff and general staff to control the position and function of all members operating at the scene and to ensure that safety requirements are satisfied.

4.3.5 Develop a plan for the treatment and transport of an injured or ill member to a medical or health care facility, given applicable resources, policies and procedures, and SOP/Gs, so that the procedure ensures that all members with life-threatening and non-life-threatening occupational injuries, illnesses, and exposures will receive immediate emergency medical care and, if necessary, transportation to the most appropriate medical or health care facility.

(A) Requisite Knowledge. SOP/Gs and health and safety policies used by the AHJ; life-threatening and non-life-threatening occupational injuries, and illnesses; and the technical knowledge necessary to develop and review SOP/Gs and EMS policy and procedures.

(B) Requisite Skills. The ability to determine the level of care needed if a member becomes ill or injured; and develop SOP/Gs for transportation of injured members.

4.4 Laws, Codes, and Standards. This duty involves establishing, assessing, and reporting the effectiveness of SOP/Gs for an occupational health, safety, and wellness program.

4.4.1 Establish SOP/Gs for an occupational health and safety program, given an organization, applicable laws, codes, and standards, an established SOP/Gs template, so that the information is in a presentable format for fire department official review and adoption, the procedures and guidelines comply with applicable laws, codes, and standards, and the SOPs/Gs are reviewed and revised, as needed.

(A) Requisite Knowledge. Applicable health and safety laws, codes, and standards pertaining to the fire service; standardized format or template for writing SOP/Gs; criteria to determine effectiveness of fire department operations and training practices; and a list of required safety subjects to address, including selection criteria.

(B) Requisite Skills. Writing and critical thinking skills; ability to understand health and safety laws, codes, and standards pertaining to the fire service; and transcribe applicable material into SOP/Gs.

4.4.2* Assess and report the adequacy and effectiveness of compliance with occupational health and safety SOP/Gs, given access to current state/provincial and federal safety and health legislation, codes, regulations, and standards and a thorough knowledge of organizational operations, policies and training, so that accurate information on fire department compliance with the applicable laws, codes, standards, and SOP/Gs is communicated to the AHJ.

(A) Requisite Knowledge. Applicable laws, codes, and standards pertaining to the fire service, fire department SOP/Gs, and a method for evaluating compliance.

(B) Requisite Skills. Writing and critical thinking skills; ability to understand health and safety laws, codes, and standards pertaining to the fire service; and communicate the information.

4.5 Training and Education. This duty involves developing, distributing, and implementing health and safety information to fire department members through training and education to support the organization's health and safety procedures, along with developing safety procedures for live fire training exercises.

4.5.1 Develop and distribute health and safety information for the education of fire department members, given Chapters 6 through 16 of this standard, SOP/Gs, and health and safety policies used by the AHJ, and a means for conveying clear, concise, and correct information to update and train members.

(A) Requisite Knowledge. SOP/Gs, health and safety policies used by the AHJ; Chapters 6 through 16 of this standard; AHJ codes, standards, and regulations that relate to the fire department occupational safety and health program.

(B) Requisite Skills. Analyze information from different data sources; interpersonal and organizational interaction; use various means to communicate information.

4.5.2 Implement the training and education of fire department members on the organization's health and safety procedures and Chapters 6 through 16 of this standard, given Chapters 6 through 16, SOP/Gs, and health and safety policies used by the AHJ, so that all emergency and nonemergency functions are evaluated, level of compliance is documented and communicated to the appropriate person(s).

(A) Requisite Knowledge. SOP/Gs and health and safety policies used by the AHJ; Chapters 6 through 16 of this standard; AHJ codes, standards, and regulations that relate to the fire department occupational safety and health program.

(B) Requisite Skills. Analyze information from different data sources; interpersonal and organizational interaction; use various means to communicate information.

4.5.3 Develop a safety procedure for live fire training exercises, given a list of live training evolutions utilized by the AHJ, instruction plans for live fire training exercises, and NFPA 1403, so that safety procedures for instructors and students are documented, and the requirements of NFPA 1403 are met.

(A) Requisite Knowledge. SOP/Gs and health and safety policies used by the AHJ; live training evolutions used by the AHJ; life-threatening and non-life-threatening occupational injuries and illnesses; requirements of NFPA 1403.

(B) Requisite Skills. Ability to develop SOP/Gs; use resources for determining code compliance; complete reporting and documentation requirements.

4.6 Accident Prevention. This duty involves developing, implementing, and managing an accident prevention program and practices.

4.6.1* Manage a fire department accident prevention program by utilizing engineering controls, administrative policies and procedures, education, protective clothing and protective equipment, given the fire department's risk management plan, accident, occupational injury, and occupational illnesses data, and reports on department functions, so that the program meets the requirements of Section 4.3, the work practices are identified, and recommendations are communicated to the appropriate person(s).

(A) Requisite Knowledge. Understand the necessary components of a fire department accident prevention program; proper use and performance limitations of protective clothing and protective equipment; procedures for developing recommendations based on fire department audits, incident reports, surveys, accident reports, occupational injury reports, inspection reports, and other applicable department information.

(B) Requisite Skills. Analyze the components necessary to be included in a fire department accident prevention program based on the requirements of Section 4.3. Analyze information from different sources; interact with or interview personnel associated with fire department operations, apparatus, equipment, fire department facilities, and SOP/Gs.

4.6.2* Implement training for safe work practices on emergency and nonemergency operations, given a risk management plan, SOP/Gs, and a training curriculum, so that the training class is delivered and members are given the necessary information to perform their job tasks in accordance with the risk management plan.

(A) Requisite Knowledge. Procedures for conducting job task analysis based on department SOP/Gs, the department's risk management plan, health and safety policies used by the AHJ, and the technical knowledge necessary to perform various job tasks.

(B) Requisite Skills. Analyze information from different sources; interact with or interview personnel involved in the training of department members; and understand delivery methods of instructional materials.

4.6.3 Develop an emergency vehicle safety program, given fire department SOP/Gs, applicable traffic laws, and an emergency vehicle operator manual, so that applicable SOP/Gs are communicated to members.

(A) Requisite Knowledge. Procedures for driving and operating fire apparatus based on department SOP/Gs, health and safety policies used by the AHJ, applicable traffic laws, and NFPA 1451.

(B) Requisite Skills. Analyze information from different sources; interact with or interview personnel involved in the training of department members; and understand delivery methods of instructional materials.

4.6.4* Conduct a periodic safety audit, given Chapters 6 through 16 of this standard, fire department operations, apparatus, equipment, facilities, training and education programs, SOP/Gs, and an audit template, so that work practices and procedures are conducted in compliance with applicable federal, state/provincial, and local laws, codes and standards; and the safety audit report and recommendations are communicated to the appropriate person(s).

(A) Requisite Knowledge. Work practices and procedures for fire department operations, apparatus, equipment, training, and fire department facilities based on SOP/Gs, Chapters 6

through 16 of this standard, audit template, and federal, state/provincial, local laws, and codes and standards.

(B) Requisite Skills. Analyze information from different sources; interact with or interview personnel involved in the training of department members; document information, utilizing an audit template, and develop reports.

4.7 Accident Investigation, Procedures, and Review. This duty involves developing policies for and conducting accident and injury investigations, along with establishing procedures and coordinating actions to implement corrective actions.

4.7.1 Conduct a safety and health investigation, given an incident or planned event involving an occupational injury, illness, exposure, fatality, near miss, or other potentially hazardous condition involving fire department members, fire department vehicles, apparatus, equipment or facilities, SOP/Gs, health and safety policies, so that the facts and the root cause of the incident are correctly identified, deviations from SOP/Gs established by the AHJ and health and safety policies are noted, recommendations are made for preventing similar losses in the future, and all information gathered in the investigation is documented, reported, and recorded according to policies established by the AHJ.

(A) Requisite Knowledge. Procedures for conducting, documenting, recording, and reporting a safety and health investigation; SOP/Gs and health and safety policies used by the AHJ; procedures for preserving evidence and documentation; and the technical knowledge pertinent to the incident under investigation, and federal, state/provincial, and local laws.

(B) Requisite Skills. Analyze information from different data sources; conduct root cause analysis; interact with or interview personnel associated with the incident; complete safety investigation documentation; identify cause(s) of injury, death, or property damage; and develop recommendations to prevent similar losses in the future.

4.7.2 Develop a policy for reporting accident and injury investigations, given an incident or planned event, applicable documents, techniques, SOP/Gs, and all applicable laws, regulations, and standards, so that the accident and/or injury is documented, procedures are reviewed, and all local, state/provincial, and federal requirements are met, documentation is completed, and recommendations for revision are made.

(A) Requisite Knowledge. Procedures for developing and reviewing accident and injury reporting and investigation; SOP/Gs and health and safety policies used by the AHJ; all applicable federal, state/provincial, and local laws, regulations, and standards.

(B) Requisite Skills. Analyze information from different data sources; interact with or interview personnel associated with the incident, often under conditions of personal stress; complete safety investigation documentation; identify cause(s) of injury, death, or property damage; and develop recommendations to prevent similar losses in the future.

4.7.3 Establish procedures for a health and safety component of a post-incident analysis, given an incident or planned event, incident information, data, reports or records, SOP/Gs, necessary technical knowledge, and all applicable laws, regulations, and standards, so that risks to personnel are identified and reduced or eliminated at future incidents, and the applicable AHJ SOP/Gs are reviewed and revised as needed.

(A) Requisite Knowledge. Knowledge of applicable hazards related to the incident; Chapters 6 through 21 of this standard; NFPA 1584; SOP/Gs and health and safety policies used by the AHJ; all applicable federal, state/provincial, and local laws, regulations, and standards.

(B) Requisite Skills. Recognize hazards at an emergency scene; determine methods for correcting health and safety hazards; analyze information from different data sources; interact with or interview personnel; write SOP/Gs.

4.7.4* Coordinate the development of a corrective action plan, given a team, a list of recommendations arising from the investigation of occupational accidents, injuries, deaths, illnesses, exposures, observation of incident scene activities, and departmental policies and procedures, so that root causes are determined, the plan is documented, and controls are implemented according to departmental policies and procedures.

(A) Requisite Knowledge. Applicable federal, state, and local laws, standards, and regulations; SOP/Gs and health and safety policies used by the AHJ; life-threatening and non-life-threatening occupational injuries and illnesses; procedures for conducting, documenting, recording, and reporting a safety and health investigation; procedures for preserving evidence and documentation; and the technical knowledge pertinent to the incident(s) under investigation.

(B) Requisite Skills. Analyze information from different data sources; interact with or interview personnel associated with the incident, often under conditions of personal stress; complete safety investigation documentation; identify cause(s) of injury, death, or property damage; and develop recommendations to prevent similar losses in the future.

4.8 Records Management and Data Analysis. This duty involves the oversight of accident reporting and the inspection testing and maintenance records of fire department equipment.

4.8.1 Manage the collection and analysis of data related to accidents, occupational deaths, injuries, illnesses, and exposures to infectious agents and communicable diseases, given incident-related data, a data collection and storage system, the requirements of Chapter 6 of this standard, so that the data summarizes fire department experience in different categories, comparisons can be made with other fire departments, national trends, and other occupations and industries, and the information can be accessed for future reference and use.

(A) Requisite Knowledge. Procedures for tabulating and compiling accident and injury data, including statistical applications, national statistical and investigative reports, Chapters 6 through 16 of this standard, SOP/Gs, and health and safety policies used by the AHJ.

(B) Requisite Skills. Basic statistical analysis in spreadsheets or other appropriate software; identify cause(s) and trends in injury, death, or property damage; and determine corrections to prevent similar losses in the future.

4.8.2 Verify records are maintained regarding the periodic inspection and service testing of fire apparatus and equipment, inspection and service testing of protective clothing and protective equipment, and fire department facilities, given Chapters 6 through 16 of this standard, inspection and service testing records for fire apparatus, equipment, and protective

clothing and protective equipment, so that records are secure, accessible, and in a format that can be easily analyzed.

(A) Requisite Knowledge. Procedures for management of records, Chapters 6 through 16 of this standard, all applicable federal, state/provincial, and local laws, regulations, and standards.

(B) Requisite Skills. Records management and organization.

4.8.3 Maintain records of corrective actions taken to mitigate health and safety hazards or unsafe practices, given evidence of corrective actions implemented, so that records of corrective actions are accessible and in a format that is appropriate for analysis.

(A) Requisite Knowledge. Procedures for management of records.

(B) Requisite Skills. Records management and organization.

4.8.4 Develop a report on fire department accidents, occupational injuries, illnesses, deaths, and exposures, given the accident and injury data and necessary equipment, so that the report, which may include recommendations, is communicated to the appropriate person(s).

(A) Requisite Knowledge. Procedures for developing reports and recommendations based on fire department audits, incident reports, surveys, accident reports, injury reports, inspection reports, and other applicable department information.

(B) Requisite Skills. Analyze information from different sources; interact with or interview personnel associated with fire department operations, apparatus, equipment, fire department facilities, and SOP/Gs; basic statistical analysis in spreadsheets or other appropriate software; identify cause(s) and trends in injury, death, or property damage; and develop recommendations to prevent similar losses in the future.

4.9 Apparatus and Equipment. This duty involves recommending safety-related specifications for fire apparatus, equipment, and PPE, and verifying compliance with the fire department's health, safety, and wellness plan.

4.9.1 Recommend safety-related specifications for fire apparatus and fire equipment, given new or existing fire apparatus and fire equipment specifications, information on new fire apparatus and fire equipment technology, and risks identified in the risk management plan, so that the specifications meet the fire department needs identified in the risk management plan, and federal, state/provincial, local laws, and NFPA standards are complied with, and the specifications are documented.

(A) Requisite Knowledge. Chapter 8 of this standard; federal, state/provincial, and local laws that relate to fire apparatus specifications; new fire apparatus and fire equipment technology, and current fire apparatus specification procedures.

(B) Requisite Skills. Ability to develop safety-related fire apparatus and equipment specifications; determine compliance with federal, state/provincial, and local laws that relate to fire apparatus and equipment specifications.

4.9.2 Recommend safety-related specifications for protective clothing and protective equipment, given new or existing protective clothing and protective equipment specifications, new protective clothing and protective equipment technology, and risks identified in the risk management plan, so that the specifications meet the fire department needs identified in the risk management plan, federal, state/provincial, local laws, and NFPA standards are complied with, and the specifications are documented.

(A) Requisite Knowledge. Chapter 9 of this standard, federal, state/provincial, and local laws that relate to fire equipment specifications; current protective clothing and protective equipment specification procedures; current state of technology in the appropriate areas of protective clothing and protective equipment; procedures, training, equipment, and safety precautions for use of protective clothing and protective equipment; the organization's risk management plan.

(B) Requisite Skills. Ability to develop safety-related protective clothing and equipment specifications; determine compliance with federal, state/provincial, and local laws related to protective clothing and protective equipment.

4.9.3 Verify performance testing of fire apparatus and fire equipment is being conducted, given performance testing requirements, applicable provisions of Chapter 8 of this standard, so that a determination can be made for the suitability of continued service.

(A) Requisite Knowledge. Chapter 8 of this standard, federal, state/provincial, and local laws that relate to performance testing of apparatus and equipment; current apparatus and equipment service testing procedures and results.

(B) Requisite Skills. Ability to verify service testing of apparatus and equipment; determine compliance with federal, state/provincial, and local laws.

4.9.4 Verify the development of an annual evaluation plan for the organization's in-service fire and emergency vehicles, given the organization's emergency vehicles and current NFPA minimum vehicle safety standards, so that a plan to retire, refurbish, or replace them based on the requirements in NFPA 1910 is developed and implemented.

(A) Requisite Knowledge. NFPA 1900 and NFPA 1910.

(B) Requisite Skills. Ability to identify safety-related features on fire and emergency vehicles and verify whether they are in compliance with NFPA standards.

4.9.5 Verify the development of an annual evaluation plan for the organization's in-service fire and emergency vehicles, given the organization's emergency vehicles and current NFPA minimum vehicle safety standards, so that a plan to retire, refurbish, or replace them based on the recommendations in Annex D of NFPA 1900 and NFPA 1910 is developed and implemented.

(A) Requisite Knowledge. NFPA 1900 and NFPA 1910.

(B) Requisite Skills. Ability to identify safety-related features on fire and emergency vehicles and verify whether they are in compliance with NFPA standards.

4.9.6 Verify the development, implementation, and maintenance of a protective clothing and protective equipment program that provides for the selection, care, maintenance, storage, and periodic inspection and evaluation of all protective clothing and equipment; given Chapters 6 through 16 of this standard, protective clothing and protective equipment, care, storage, and maintenance resources, SOP/Gs established by the AHJ, and all applicable laws, regulations, and standards, so that a determination can be made for the suitability of continued service.

(A) Requisite Knowledge. Chapter 9 of this standard, and federal, state/provincial, and local laws that relate to protective clothing and equipment programs.

(B) Requisite Skills. Ability to develop a protective clothing and protective equipment program; determine compliance with federal, state/provincial, and local laws.

4.10 Facility Inspection. This duty involves developing a facility health and safety inspection plan and conducting inspections for compliance.

4.10.1* Develop a health and safety facility inspection SOP/G, process, and checklist for a fire department facility, given the requirements of Chapter 12 of this standard, and available resources, so that the appropriate inspection procedures are developed, and safety and health hazards are noted in accordance with all applicable laws, regulations, and standards.

(A) Requisite Knowledge. Chapter 12 of this standard, federal, state/provincial, and local laws; current facility inspection procedures; resources for conducting a facility inspection; procedures, equipment, and safety precautions for conducting facility inspections.

(B) Requisite Skills. Develop SOP/Gs and procedures; acquire resources to initiate and coordinate a facility inspection; use resources for determining code compliance; complete reporting and documentation requirements; and understand and comply with all applicable laws, regulations, and standards.

4.10.2* Conduct a health and safety inspection for a fire department facility, given the requirements of Chapter 12 of this standard, a facility that requires an inspection, and available resources, so that the appropriate inspection procedures are selected and implemented in accordance with all applicable laws, regulations, and standards, the inspection is conducted safely, all the required reports are completed; and ensure the violations are corrected.

(A) Requisite Knowledge. Chapter 12 of this standard, federal, state/provincial, and local laws; current facility inspection procedures; resources for conducting a facility inspection; procedures, equipment, and safety precautions for conducting facility inspections.

(B) Requisite Skills. Use resources to determine code compliance; complete reporting and documentation requirements; and understand and comply with all applicable laws, regulations, and standards.

4.11 Health Maintenance. This duty involves coordinating and analyzing fire department health, safety, and wellness program management.

4.11.1 Analyze the fire department health maintenance program, given a fire department health maintenance program and the medical and physical requirements of Chapter 13 of this standard, so that the program includes medical, physical performance, and health and fitness requirements, as well as a health database, infectious control procedures, a fire department physician, and fitness for duty evaluations; and recommendations are made to correct any noted deficiencies.

(A) Requisite Knowledge. Chapters 13, 14, and 15 of this standard; AHJ codes, standards, and regulations that relate to the fire department health maintenance program; fire department health maintenance program; medical surveillance, wellness programs, physical fitness, nutrition, and injury and illness rehabilitation programs; resources for conducting a fire department health maintenance program; procedures, equipment, and safety precautions for the fire department health maintenance program.

(B) Requisite Skills. Analyze and incorporate information from health maintenance programs; interact with or interview personnel associated with health and wellness.

4.11.2 Coordinate the fire department health maintenance program, given a fire department health maintenance program and the medical and physical requirements of Chapter 13 of this standard, so that the program includes medical, physical performance, and health and fitness requirements, as well as a health database, infectious control procedures, a fire department physician, and fitness for duty evaluations; and recommendations are made to correct any noted deficiencies.

(A) Requisite Knowledge. Chapters 13, 14, and 15 of this standard; AHJ codes, standards, and regulations that relate to the fire department health maintenance program; fire department health maintenance program; medical surveillance, wellness programs, physical fitness, nutrition, and injury and illness rehabilitation programs; resources for conducting a fire department health maintenance program; procedures, equipment, and safety precautions for the fire department health maintenance program.

(B) Requisite Skills. Analyze and incorporate information from health maintenance programs; interact with or interview personnel associated with health and wellness.

4.12 Liaison. This duty involves communicating and informing on the fire department occupational health, safety, and wellness program to internal and external stakeholders.

4.12.1 Communicate recommendations from the fire department occupational health and safety committee to the appropriate person(s), given SOP/Gs and health and safety policies used by the AHJ, a fire department occupational health and safety committee, and committee recommendations, so that all recommendations are documented and forwarded to the appropriate person(s).

(A) Requisite Knowledge. SOP/Gs and health and safety policies used by the AHJ; Chapters 6 through 16 of this standard; AHJ codes, standards, and regulations that relate to the fire department occupational safety and health committee.

(B) Requisite Skills. Evaluate recommendations and communicate them in a manner such that recommendations and objectives are met.

4.12.2 Provide information and assistance to personnel for surveying their districts regarding potential health and safety hazards, given a scenario, the fire department's risk management plan, and SOP/Gs, so that they will be able to identify and report health and safety hazards that could have adverse effects on fire department operations.

(A) Requisite Knowledge. Procedures for conducting job tasks based on department SOP/Gs, the department's risk management plan, health and safety policies used by the AHJ, and the technical knowledge necessary to perform various job tasks.

(B) Requisite Skills. Ability to evaluate and prioritize hazards, utilize critical thinking to analyze the hazard, select the most

appropriate control measure, and evaluate its effectiveness in enhancing firefighter safety.

4.12.3 Develop recommendations for changes in equipment, procedures, and methods based on results of evaluations; given recommendations from the fire department occupational safety and health committee, safety audits, an analysis of injury statistics or other reliable sources of hazardous conditions or injury data, so that the recommendations for equipment, procedures and methods can be accepted and approved in accordance with the AHJ.

(A) Requisite Knowledge. Hazard recognition, assessment, controls, and evaluation; health and safety recommendations; use of safety audits; injury statistics.

(B) Requisite Skills. Analyze and interpret injury statistics; interpersonal skills; and report writing.

4.12.4 Verify medical advice and treatment are available to members of the fire department, given a fire department physician, fire department members, understanding of occupational medicine for the fire service and the IAFF/IAFC Fire Service Joint Labor Management Wellness-Fitness Initiative, so that members receive the necessary information to maximize their health, wellness, and safety.

(A) Requisite Knowledge. Medical requirements for members as specified in NFPA 1582 and IAFC/IAFF Joint Labor Management Wellness-Fitness Initiative; health hazards associated with firefighting; and current occupational health, wellness, and safety practices.

(B) Requisite Skills. Organizational skills, communication skills, and interpersonal skills.

4.12.5* Provide information and assistance regarding risks that may impact operations, given a scenario, the fire department's risk management plan, SOP/Gs, so that members can perform their job tasks in a safe and effective manner.

(A) Requisite Knowledge. Procedures for conducting job tasks based on department SOP/Gs, the department's risk management plan, health and safety policies used by the AHJ, and the technical knowledge necessary to perform various job tasks.

(B) Requisite Skills. Ability to evaluate and prioritize hazards, utilize critical thinking to analyze the hazard, select the most appropriate control measure, and evaluate its effectiveness in enhancing firefighter safety.

4.13 Infection Control. This duty involves assessing and implementing a fire department's infection control program, and as necessary, acting as the infection control officer.

4.13.1 Assess the fire department's infection control program, given a copy of the department's program, incident reports, and access to infection control equipment and facilities, so that the requirements of the Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581.

(A) Requisite Knowledge. SOP/Gs, Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581.

(B) Requisite Skills. Acquire and document infection control procedures; coordination skills necessary to revise program; assess the requirements based on Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581.

4.13.2 Function as the fire department infection control officer, if an infection control officer position does not exist in the fire department, given an infection control scenario, so that the objectives of the infection control program as specified in the requirements of Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens"; and NFPA 1581 are met.

(A) Requisite Knowledge. The Ryan White HIV/AIDS Treatment Extension Act (S.1793); Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines; 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens"; and NFPA 1581; and roles and responsibilities of an infection control officer.

(B) Requisite Skills. Acquire and document infection control procedures; coordination skills necessary to revise program; assess the requirements based on the Ryan White HIV/AIDS Treatment Extension Act (S.1793), Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581; integrate the occupational health and safety aspects of the risk management program into infection control training and education programs, and educate members.

4.13.3 Identify minimum criteria for fire station infection control, given basic construction plans, drawings, and design guides so that deficiencies are identified, documented, and reported in accordance with US federal law, Code of Federal Regulations, Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA), National Institute of Occupational Safety and Health (NIOSH) and/or the American Conference of Government Industrial Hygienists (ACGIH) Occupational Exposure Limits, National Fire Protection Association (NFPA), the United States Fire Administration (USFA), and policies and procedures of the jurisdiction.

(A) Requisite Knowledge. Public Law 91-596, The Occupational Safety and Health Act of 1970; The William-Steiger Occupational Safety and Health Act of 1970; 29 CFR 1910; CDC, *Basic Infection Prevention and Control Procedures*; OSHA, NIOSH, and/or the ACGIH *Occupational Exposure Limits*; Chapters 6 through 16 of this standard; NFPA 1581; NFPA 1851; FEMA/USFA FA-168, *Safety and Health Considerations for the Design of Fire and Emergency Medical Services Stations*; and policies and procedures of the jurisdiction for infection control.

(B) Requisite Skills. Ability to identify hand-washing capacity where contaminated materials are cleaned, stored, disinfected, or laundered; nonporous surface, drainage, and appliance requirements for kitchens; spacing and ventilation, heating, and cooling requirements in sleeping areas; fixture require-

ments for bathrooms; dedicated equipment storage areas, other than those stored on vehicles; contaminated temporary storage areas for personal protective equipment (PPE) and portable equipment; designated facility or cleaning areas for disinfecting contaminated PPE and potable equipment; designated cleaning areas for PPE and potable equipment; designated disposal areas for medical or other regulated waste; apparatus bay air-cleaning filtration systems and/or vehicle filtration systems; facility heating, ventilation, and air conditioning (HVAC) systems; and transition zones to allow movement between spaces exposed to contaminates and living/working spaces designed for extended occupancy.

Chapter 5 Incident Safety Officer (NFPA 1521)

5.1 General.

5.1.1 The fire department incident safety officer (ISO) shall meet the requirements of Fire Officer Level I specified in NFPA 1021, and the job performance requirements (JPRs) defined in Sections 5.2 through 5.7.

5.1.2* A fire department ISO shall recuse himself/herself from any investigatory process where a conflict of interest exists.

5.2 General Requirements This duty involves the general activities of an ISO at all types of incidents.

5.2.1 Perform the role of ISO within an incident command system (ICS) at an incident or planned event, given an incident or planned event, an ICS structure, a command post, a briefing from an incident commander (IC) or outgoing ISO, SOP related to health and safety, an incident action plan (IAP), applicable protective clothing and protective equipment, and communications and information recording equipment, so that the assignment is received and understood; situational information about the incident or planned event is received; incident priorities, goals, and objectives are transferred; action is taken to mitigate any immediate life safety threats; and applicable communication means are employed.

(A) Requisite Knowledge. Crew resource management, understanding of accepted safety and health principles, including issues such as the hierarchy of controls, specific technical or regulatory areas pertinent to the response, and the accepted management principles needed to promote safety in the response environment.

(B) Requisite Skills. Prioritizing tasks, making decisions in an environment with a large number of unknowns, evaluating resource needs, recognizing the need for supplemental technical knowledge, and taking action in a proactive manner to ensure responder safety and health. [**1026:**5.2.1(B)]

5.2.2* Monitor the IAP, conditions, activities, and operations, given an incident or planned event, an IAP, and risk management assessment criteria, so that activities and operations that involve an unacceptable level of risk can be altered, terminated, or suspended to protect members' health and safety.

(A) Requisite Knowledge. Comprehensive knowledge of incident hazards, applicable legislation, regulations, codes, and standards, the incident management system (IMS), recognized safety practices, risk management criteria, including what constitutes unacceptable level of risk; and fire department operations, training materials, and SOP/Gs.

(B) Requisite Skills. Ability to apply knowledge of fire behavior and fire dynamics, building construction, department SOP/Gs, training materials, and applicable safety practices in a risk management assessment to determine the most appropriate actions to minimize health and safety risks.

5.2.3 Manage the transfer of ISO duties, given an incident or planned event, an established command structure and ISO, an IAP, an incident safety plan, a current situation status, incident resources, a command post, incident documentation, and communications equipment, so that incident information is exchanged, reports and plans for the subsequent operational period are completed, continuity of authority and situational awareness are maintained, changes in incident or planned event complexity are accounted for, the new ISO is briefed on the incident or planned event, and the new ISO is identified.

(A) Requisite Knowledge. AHJ's procedures for transfer of duty; information sources; resource accountability and tracking process; use of IMS forms; the role and duties of an ISO within an IMS; organizational policies and procedures for safety; accountability protocols; resource types and deployment methods; documentation methods and requirements; availability, capabilities, and limitations of responders and other resources; communication problems and needs; communications requirements; operational periods for ISO functions; and types of tasks and assignment responsibilities.

(B) Requisite Skills. Conducting a transfer briefing meeting; acquiring and documenting information and orders from the IC; using reference materials; evaluating incident information; managing communications; completing required ICS and health and safety forms; recognizing the need to expand and/or transfer the safety function in the ICS structure; reviewing, understanding, and conducting a transfer of duty briefing, including the completion of the transfer documents; and communicating in a manner such that information is transferred and objectives are met. [**1026:**5.2.2(B)]

5.2.4 Stop, alter, or suspend operations based on imminent threats posed to firefighter safety, given an incident or planned event that contains threats to firefighter safety, an incident management structure, risk management criteria, and applicable SOP/Gs, so that the hazard is identified, notice to suspend operations is communicated, action is taken to protect firefighter safety, and this information is communicated to the IC.

(A) Requisite Knowledge. Knowledge of what constitutes imminent hazards at an incident or planned event that could impact firefighter safety, IMS, radio protocols and transmission procedures, fire behavior/dynamics, hazardous energy, reading smoke, building construction, and departmental SOP/Gs and training materials.

(B) Requisite Skills. Ability to evaluate hazards; determine the relative degree of risk to members and whether they pose an imminent threat to firefighter safety; use of department radios and communication abilities.

5.2.5 Monitor and determine the incident scene conditions, given an incident or planned event, so that the ISO can report to the IC on the status of hazards and risks to members.

(A) Requisite Knowledge. Knowledge of what constitutes hazards at an emergency incident, the IMS, radio protocols and transmission procedures, incident hazards, and departmental SOP/Gs.

(B) Requisite Skills. Ability to evaluate hazards, determine the relative degree of risk to members, prioritize the risks, and communicate this information to the IC.

5.2.6 Monitor the accountability system, given an incident or planned event, an IMS, personal identification devices, radios, and applicable SOP/Gs, so that it can be determined that the accountability system is being utilized as designed, all relevant positions and functions are implemented, and any noted deficiencies are communicated to the IC.

(A) Requisite Knowledge. Knowledge of incident management system, department accountability system positions and protocols, radio protocols and transmission procedures, and departmental SOP/Gs.

(B) Requisite Skills. Ability to recognize inadequacies in the use of the accountability system.

5.2.7* Determine hazardous incident conditions and advise the IC to establish or modify control zones, given an incident, so that the incident control zones are communicated to members and entry into the hazardous area is controlled.

(A) Requisite Knowledge. Comprehensive knowledge of hazardous conditions, operations, departmental SOP/Gs and training materials, control zones protocols, and the IMS.

(B) Requisite Skills. Ability to evaluate the effect of proximity for incident hazards so that risk to members will be limited to emergency responders assigned tasks to mitigate the incident.

5.2.8 Identify motor vehicle incident scene hazards, given an apparatus and temporary traffic control devices, an incident or planned event, so that actions to mitigate the hazards as described in Section 10.7 of this standard are taken to protect member safety.

(A) Requisite Knowledge. Knowledge of hazards associated with vehicle incidents and apparatus placement, the IMS, departmental SOP/Gs and training materials, state/provincial and local traffic regulations, risk management principles and criteria, and applicable safety principles and practices.

(B) Requisite Skills. Ability to apply knowledge of hazards and regulations to an incident within a risk management framework to protect member safety.

5.2.9 Monitor radio transmissions, given an incident or planned event with radio transmissions, so that communication barriers are identified and the possibility for missed, unclear, or incomplete communications is corrected.

(A) Requisite Knowledge. Knowledge of radio protocols and transmission procedures, the IMS, emergency incident hazards, and departmental SOP/Gs.

(B) Requisite Skills. Ability to recognize missed, unclear, or incomplete communications.

5.2.10* Identify the incident strategic requirements (e.g., fire, technical search and rescue, hazmat), the corresponding hazards, the size, complexity, and anticipated duration of the incident, including the associated risks, given an incident or planned event, an IMS, and applicable SOP/Gs, so that the ISO can determine the need for assistant ISOs and/or technical specialists and make the recommendations to the IC.

(A) Requisite Knowledge. Comprehensive knowledge of incident hazards; applicable legislation, regulations, codes, and standards; the IMS; recognized safety practices; risk management criteria, including what constitutes unacceptable level of risk; and fire department operations, training materials, and SOP/Gs.

(B) Requisite Skills. Ability to recognize the types of hazards that might require additional ISOs or technical specialists, and applicable safety practices.

5.2.11 Determine the hazards associated with the designation of a landing zone and interface with helicopters, given an incident or planned event that requires the use of a helicopter and landing zone, so that the IC can be informed of special requirements and the landing can be executed in a safe manner.

(A) Requisite Knowledge. Helicopter and landing zone requirements; hazards associated with helicopters and landing zones; safety issues associated with landing zones; and the IMS.

(B) Requisite Skills. Ability to recognize landing zone locations and hazards.

5.2.12* Notify the IC of the need for intervention resulting from an occupational exposure to atypical stressful events, given an incident or planned event and an awareness of incidents that can cause incident stress, so that members' psychological health and safety can be protected.

(A) Requisite Knowledge. Knowledge of incidents that can lead to occupational exposure to atypical stress, the signs and symptoms of occupational exposure to atypical stress, the difference between *debriefing* and *defusing*, and support teams and other resources to provide assistance.

(B) Requisite Skills. Ability to recognize signs and symptoms of occupational exposure to atypical stress; an accepting and empathetic demeanor; and good communication skills.

5.2.13* Determine hazardous energy sources that can affect responder health and safety, given an incident or planned event, an active IAP with assigned responders, and an opportunity to perform environmental and operational reconnaissance, so that risks to personnel are identified, reduced, or eliminated; hazard information is relayed to IC staff and ancillary agencies responsible for the hazardous energy source; appropriate zones are established and marked; and personnel operating at the scene are briefed on the hazardous energy control zone.

(A) Requisite Knowledge. Common component assemblies for hazardous energy sources, including but not limited to gas, electrical, water, and pressure vessels; hazardous properties of common utility gases; common electrical distribution grid components and arrangements; and control zone marking schemes as defined by Section 10.7 of this standard.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; prioritizing to address hazards on a most critical–first basis; communicating hazard information to personnel via the incident safety plan, IAP, face-to-face, radio, and safety briefings; determining boundaries and markings for control zones; formulating recommendations for IC action; exercising authority to suspend imminent danger operations; and anticipating evolving site conditions that require IAP changes.

5.2.14 Monitor conditions, including weather, firefighter activities, and work cycle durations, given an incident or planned event, so that the need for rehabilitation can be determined,

communicated to the IC, and implemented to ensure firefighter health and safety.

(A) Requisite Knowledge. Comprehensive knowledge of heat and cold assessment criteria, rehabilitation strategies, including NFPA 1584, SOP/Gs and training materials; available resources that can be used for rehabilitation, signs and symptoms of cardiac stress, and heat and cold stress.

(B) Requisite Skills. Ability to recognize signs of cardiac, heat, and cold stress; set up a rehab area and ensure that members use it as designed.

5.2.15 Identify incident environmental conditions and contaminates, given an incident or planned event, so that identified hazards can be communicated to the IC and division and/or group supervisors, and the need for contamination control procedures for PPE, personnel hygiene, and utilized equipment can be determined and implemented, prior to incident departure, to help prevent continued exposure and cross contamination from known and potential contaminants.

(A) Requisite Knowledge. Common byproducts of combustion and pyrolysis including toxic chemicals, biological pathogens, particulate matter, and aromatics; NFPA 1851; AHJ SOP/Gs for on-scene PPE contamination control and cancer prevention; methods and levels of equipment cleaning as prescribed by equipment manufacturers.

(B) Requisite Skills. Ability to evaluate fire, smoke, and environmental conditions, determine member exposures to those conditions, and communicate contamination judgements to the IC and tactical work members; recognize issues of equipment contamination with regards to use, transportation, separation, and storage during incident operations and demobilization; judge contamination reduction efforts and develop further exposure-prevention measures, where necessary, and communicate those measures to members.

5.3 Fire Suppression Operations. This duty involves the specific activities of an ISO at a fire suppression incident.

5.3.1* Determine incident environmental and operational factors and confirm the establishment of rapid intervention crew (RIC) and evaluate the need to increase RIC capability, given an incident or planned event that includes one or more immediately dangerous to life and health (IDLH) elements, responders engaged in tactical operations, a pre-assigned RIC, and an IAP, so that a recommendation is offered to the IC.

(A) Requisite Knowledge. RIC criteria for Chapters 6 through 21 of this standard, NFPA 1710, NFPA 1720, AHJ SOP/Gs, and directives for RIC establishment and use.

(B) Requisite Skills. Interpret applicable regulations, guidelines, procedures, and consensus standards for implementation at incidents; audit conditions to ensure policies are being followed; and formulate recommendations for incident command action.

5.3.2* Communicate fire behavior, building access/egress issues, collapse, and hazardous energy issues to established RICs, given an incident or planned event, so that RIC team leaders are aware of the observations and concerns of the ISO.

(A) Requisite Knowledge. Structural/compartmentalized fire behavior, building construction features and associated hazards, and hazardous energy properties and components.

(B) Requisite Skills. Ability to interpret fire suppression hazards and operations and communicate through face-to-face and radio methods.

5.3.3* Identify and estimate building/structural collapse hazards, given a building fire incident, a building collapse incident, reconnaissance opportunity, and established AHJ pre-incident building plan information, so that the identified collapse hazard can be communicated to the IC and tactical-level management units; judgment is offered to the IC for the establishment of control zone(s); personnel are removed from collapse zone dangers; and appropriate adjustments are made to the IAP by the IC to improve member safety.

(A) Requisite Knowledge. Building construction classifications and associated hazards; structural fire collapse indicators; building fire spread; fire effects on building materials, loads, and forces; structural conditions that warrant stopping, altering, or suspending incident or planned event operations; procedures for managing unsafe acts or operations and procedures for notifying command of stopped, altered, or suspended operations; methods for determining collapse zone distances; and AHJ pre-incident target building hazards.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; applying AHJ building fire preplan systems at actual incidents; interpreting collapse hazards; communicating hazard information to personnel via the incident safety plan, IAP, face-to-face, radio, and safety briefings; determining boundaries and markings for control zones; formulating recommendations for incident command action; exercising authority to suspend imminent danger operations; and anticipating evolving site conditions that require IAP changes.

5.3.4* Determine flashover and hostile fire event potential at building fires, given an incident, so that risks are identified and communicated to the incident commander and tactical-level management units, and adjustments are made to strategy and tactics to improve safety.

(A) Requisite Knowledge. Compartmentalized fire behavior theory, flashover and other hostile fire incident indicators, ventilation flow path, fire-load (fuel) characteristics, effects of firefighting efforts on fire behavior.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; reading smoke (volume, velocity, density, and color); and communicating fire behavior concerns through face-to-face and radio methods.

5.3.5* Determine fire growth and blow up, given wildland and cultivated vegetation fires, so that information can be communicated to the IC and tactical-level management components, and adjustments made to the IAP to improve member safety.

(A) Requisite Knowledge. Wildland and vegetation fire behavior and wildland fire phenomena such as blow ups and flaring.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; interpreting fuel, topography, flame length, and weather effects on wildland and vegetation fires; and communicating fire behavior concerns through face-to-face and radio methods.

5.3.6 Determine the suitability of building entry and egress options at building fires, given various building fire incidents, so that entry and egress options are optimized through communication with the IC and tactical-level management components.

(A) Requisite Knowledge. Building construction access and egress challenges; AHJ building pre-fire systems; firefighting equipment capabilities, and AHJ firefighting resource capabilities.

(B) Requisite Skills. Critical identification, analysis and judgment abilities; and communicating access and egress concerns through face-to-face and radio methods.

5.4 Technical Search and Rescue Operations. This duty involves determining the need for an ISO specifically trained for technical search and rescue operations, with preparing a safety plan for the operation and giving an incident briefing.

5.4.1* Determine the need for a search and rescue technician–trained ISO or assistant ISO, given a technical search and rescue incident; CFR 1910.146; NFPA 1006; and AHJ SOP/Gs for technical search and rescue operations, so that the IC can appoint an assistant ISO or a search and rescue technician.

(A) Requisite Knowledge. Technical search and rescue incident types as defined in NFPA 1006 and AHJ SOP/Gs for technical search and rescue operations.

(B) Requisite Skills. Identifying technical search and rescue incident resource needs and forecasting stabilization strategies.

5.4.2 Prepare a safety plan that identifies corrective or preventive actions, given a technical search and rescue incident, an IAP that includes situation and resource status information, an incident safety analysis form (ICS form 215A or its equivalent), weather condition information, special technical data (such as safety data sheets and topographical information, blueprints, and building drawings), and predetermined incident information, so that safety data are obtained, an incident safety plan is developed with coordinating documentation, elements of the plan are incorporated in the IAP, changes in incident safety conditions are noted and reported, judgment is offered to the IC for the establishment of control zone(s) and exclusion zone(s), safety and appropriate PPE elements are met, and assistant ISOs are appointed as necessary.

(A) Requisite Knowledge. Risk management principles; technical search and rescue operations strategies and tactics; hazard mitigation and countermeasure strategies; NIMS IAP and planning processes; NIMS documentation system; NFPA 1951; 29 CFR 1910.146; and AHJ SOP/Gs for hazardous materials operations.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; communicating safety issues within the command structure; and reading/editing technical documentation.

5.4.3* Deliver a safety briefing for technical search and rescue incident response members, given a technical search and rescue incident, so that critical information such as expected hazards, PPE requirements, established zones, emergency procedures, air monitoring, medical surveillance, and chain-of-command elements are communicated.

(A) Requisite Knowledge. OSHA 29 CFR 1910.146 requirements for a site safety and health plan; NIMS forms and ICS processing criteria; general technical search and rescue operations safety strategies; and AHJ technical search and rescue SOP/Gs.

(B) Requisite Skills. Ability to communicate critical messages in written and oral formats.

5.5 Hazardous Materials Operations. This duty involves determining the need for an ISO specifically trained for a hazardous material incident, establishing control zones, with preparing a safety plan for the incident and giving an incident briefing.

5.5.1* Determine the need for a hazardous materials technician-trained ISO or assistant ISO, given a hazardous materials incident, 29 CFR 1910.120, NFPA 470, and AHJ SOP/Gs for hazardous materials operations, so that the IC can appoint an assistant ISO or a hazardous materials technician.

(A) Requisite Knowledge. Hazardous materials incident types as defined in NFPA 470, and AHJ SOP/Gs for hazardous materials operations.

(B) Requisite Skills. Identifying hazardous materials incident resource needed; forecasting stabilization strategies.

5.5.2 Prepare a safety plan that identifies corrective or preventive actions, given a hazmat incident, IAP that includes situation and resource status information, an incident safety analysis form (ICS form 215A or its equivalent), weather condition information, special technical data (such as safety data sheets and topographical information, blueprints, and building drawings), and predetermined incident information, so that safety data are obtained, an incident safety plan is developed with coordinating documentation, elements of the plan are incorporated in the IAP, changes in incident safety conditions are noted and reported, judgment is offered to the IC for the establishment of control zone(s) and exclusion zone(s), safety and PPE elements of 29 CFR 1910.120 are met, and assistant ISOs are appointed as necessary.

(A) Requisite Knowledge. Risk management principles; hazardous materials operations strategies and tactics; hazard mitigation and countermeasure strategies; NIMS IAP and planning processes; NIMS documentation system; and AHJ SOPs/Gs for hazardous materials operations.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; communicating safety issues within the command structure; and reading/editing technical documentation.

5.5.3* Deliver a safety briefing for hazardous materials incident response members, given a hazmat incident or scenario, so that critical information such as expected hazards, PPE requirements, established zones, decontamination procedures, emergency procedures, air monitoring, medical surveillance, and chain-of-command elements are communicated.

(A) Requisite Knowledge. OSHA 29 CFR 1910.120 requirements for a site safety and health plan; NIMS forms and ICS processing criteria; general hazmat operations safety strategies; and AHJ hazmat SOPs/Gs.

(B) Requisite Skills. Ability to communicate critical messages in written and oral formats.

5.5.4* Identify that hazardous materials incident control zones have been established and communicated to personnel on the scene, given a hazardous materials incident and SOP/Gs, so that responders can identify marked control zones, which must be inclusive of no-entry zones, hot zones, hazard reduction zones, support zones, and corridors.

(A) Requisite Knowledge. Common zoning strategies for hazardous materials operations, methods of marking zones, and AHJ SOP/Gs for zone communication; NFPA 470; and other applicable NFPA documents.

(B) Requisite Skills. Ability to adapt zoning strategies to individual incident challenges such as topography, weather, and resource variants.

5.6 Accident Investigations and Review. This duty involves conducting a safety and health investigation.

5.6.1* Conduct a safety and health investigative process, given an incident or planned event, using applicable documents and techniques, so that the chain of evidence is started and maintained, critical incident data elements are collected, potential witnesses are identified, applicable SOP/Gs are identified for review, and gathered information is documented and prepared for the HSO or investigative continuance as established by the AHJ policies and SOP/Gs.

(A) Requisite Knowledge. Procedures for conducting, documenting, recording, and reporting a safety investigation, SOP/Gs and health and safety investigative policies used by the AHJ; procedures for preserving evidence and documentation; and the technical knowledge pertinent to the incident under investigation.

(B) Requisite Skills. Analyzing information from different data sources; identifying equipment and materials that might be considered evidence; interacting with or interviewing personnel associated with the incident, often under conditions of personal stress; completing safety investigation documentation; identifying cause(s) of injury, death, or property damage; and determining corrections to prevent similar losses in the future.

5.7 Post-Incident Analysis (PIA). This duty involves preparing a written post-incident analysis and reporting observations, concerns, and recommendations.

5.7.1* Prepare a written post-incident analysis (PIA) from the ISO perspective, given a witnessed incident, exercise, or planned event, so that safety and health issues, best safety practices, deviations from SOP/Gs established by the AHJ, and recommendations for future events are documented.

(A) Requisite Knowledge. Chapters 6 through 16 of this standard, PIA reporting criteria, and AHJ SOP/Gs for PIAs.

(B) Requisite Skills. Transferring incident observations into field notes and documenting field notes into a formal PIA structure.

5.7.2* Report observations, concerns, and recommendations, given a witnessed incident or planned event and PIA group setting, so that that safety and health issues, best safety practices, deviations from SOP/Gs established by the AHJ, and recommendations for future events are communicated to the AHJ.

(A) Requisite Knowledge. Group dynamics in problem solving.

(B) Requisite Skills. Active listening skills; and composing and relaying constructive information in a group setting.

Chapter 6 Fire Department Administration (NFPA 1500)

6.1 Administration

6.1.1 Scope. Chapters 6 through 16 shall contain minimum requirements for a fire service–related occupational safety, health, and wellness program.

6.1.2 Purpose.

6.1.2.1 The purpose of Chapters 6 through 16 shall be to specify the minimum requirements for an occupational safety, health, and wellness program for a fire department.

6.1.2.2 Chapters 6 through 16 shall specify safety requirements for those members involved in rescue, fire suppression, emergency medical services, hazardous materials operations, special operations, fire investigations, fire inspections, and related activities.

6.1.2.3* The authority having jurisdiction shall identify which performance objectives of this standard existing programs or policies meet.

6.1.2.4 Nothing herein shall be intended to restrict any jurisdiction from exceeding these minimum requirements.

6.1.3 Application.

6.1.3.1 The requirements of Chapters 6 through 16 shall be applicable to organizations providing rescue, fire suppression, emergency medical services, hazardous materials mitigation, special operations, fire investigations, fire inspections, and other emergency services, including public, military, private, and industrial fire departments.

6.1.3.2 Chapters 6 through 16 shall not apply to industrial fire brigades that might also be known as emergency brigades, emergency response teams, fire teams, plant emergency organizations, or mine emergency response teams.

6.1.4 Equivalency.

6.1.4.1* The authority having jurisdiction shall be permitted to approve an equivalent level of qualifications for the requirements specified in Chapter 7 of this standard.

6.1.4.2 The fire department shall provide technical documentation to demonstrate equivalency.

6.1.5 Adoption Requirements.

6.1.5.1* When this standard is adopted by a jurisdiction, the authority having jurisdiction (AHJ) shall set a date or dates for achieving compliance with the requirements of this standard.

6.1.5.2* The AHJ shall be permitted to establish a phase-in schedule for compliance with specific requirements of this standard.

6.1.5.3 The fire department shall adopt a risk management plan as specified in Section 6.3 of this standard.

6.1.5.3.1 This risk management plan shall include a written plan for compliance with this standard.

6.2 Fire Department Organizational Statement.

6.2.1* The fire department shall prepare and maintain a written statement or policy that establishes the existence of the fire department, the services the fire department is authorized and expected to perform, and the basic organizational structure.

6.2.2* The fire department shall prepare and maintain written policies and standard operating procedures that document the organization structure, membership, roles and responsibilities, expected functions, emergency operations, and training requirements, including the following:

(1) The types of standard evolutions that are expected to be performed and the evolutions that must be performed simultaneously or in sequence for different types of situations
(2) The minimum number of members who are required to perform each function or evolution and the manner in which the function is to be performed in accordance with NFPA 1710 or NFPA 1720
(3) The number and types of apparatus and the number of personnel that will be dispatched to different types of incidents in accordance with NFPA 1710 or NFPA 1720
(4) The procedures that will be employed to initiate and manage operations at the scene of an emergency incident
(5) Post-incident control and mitigation of emergency scene contaminants

6.2.3 The organizational statement and procedures shall be available for inspection by members or their designated representative.

6.2.4 The fire department shall evaluate current trends and research to determine if policies and procedures are appropriate at least annually or following a near miss or catastrophic event.

6.2.5* Fire departments shall develop pre-incident plans as determined by the AHJ.

6.2.5.1* Fire departments shall develop a construction or demolition fire safety program(s) as determined by the AHJ.

6.3 Risk Management Plan.

6.3.1* The fire department shall develop and adopt a comprehensive written risk management plan.

6.3.2 The risk management plan shall at least cover the risks associated with the following:

(1) Administration
(2) Facilities
(3) Training
(4) Vehicle operations, both emergency and nonemergency
(5) Protective clothing and equipment
(6) Operations at emergency incidents *(see Annex I)*
(7)* Nonemergency services or activities
(8) Products of combustion, carcinogens, and other incident-related health hazards
(9) Other related activities

6.3.3* The risk management plan shall include at least the following components *(see Annex J)*:

(1) Risk identification — actual and potential hazards
(2) Risk evaluation — likelihood of occurrence of a given hazard and severity of its consequences
(3) Establishment of priorities for action — the degree of a hazard based upon the frequency and risk of occurrence
(4) Risk control techniques — solutions for elimination or mitigation of potential hazards; implementation of best solution
(5) Risk management monitoring — evaluation of effectiveness of risk control techniques

6.4 Safety and Health Policy.

6.4.1* The fire department shall adopt an official written departmental occupational safety, health, and wellness policy that identifies specific goals and objectives for the prevention and elimination of accidents and occupational injuries; exposure to communicable disease; exposure to products of combustion, carcinogens, contaminants, and other incident-related health hazards; illnesses; and fatalities.

6.4.2 It shall be the policy of the fire department to seek and to provide for its members an occupational safety, health, and wellness program that complies with Chapters 6 through 16.

6.4.3* The fire department shall evaluate the effectiveness of the occupational safety, health, and wellness program at least once every 3 years or following a catastrophic or near miss event.

6.4.3.1 An audit report of the findings shall be submitted to the fire chief and to the members of the occupational safety and health committee.

6.5 Roles and Responsibilities.

6.5.1 It shall be the responsibility of the fire department to research, develop, implement, and enforce an occupational safety, health, and wellness program that recognizes and reduces the inherent risks involved in the operations of a fire department.

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

6.5.3* The fire department shall establish and enforce rules, regulations, and standard operating procedures to meet the objectives of Chapters 6 through 16.

6.5.4 The fire department shall be responsible for developing and implementing an accident investigation procedure.

6.5.5* All accidents, near misses, injuries, fatalities, occupational illnesses, and exposures involving members shall be investigated.

6.5.5.1 All accidents involving fire department vehicles, equipment, or fire department facilities shall be investigated.

6.5.5.2 The fire department shall take the corrective action necessary to avoid repetitive occurrences of accidents and exposure to communicable diseases.

6.5.5.3 Records of such investigations shall be kept in accordance with the applicable provisions of 6.7.1.

6.5.5.4* The fire department shall develop, adopt, and maintain a written policy related to the documentation and dissemination of information related to internal near-miss investigations and provide information to members.

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

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

6.5.8 The member organization, where such an organization exists, shall cooperate with the fire department by representing the interests and the welfare of the members in the research, development, implementation, and evaluation of the occupational safety, health, and wellness program.

6.5.8.1 The member organization shall have the right to represent the individual and collective rights of its members in the occupational safety, health, and wellness program.

6.6 Occupational Safety and Health Committee.

6.6.1* An occupational safety and health committee shall be established and shall serve the fire chief in an advisory capacity.

6.6.1.1 The committee shall include the following members:

(1) The designated fire department health and safety officer (HSO)
(2) Representatives of fire department management
(3) Individual members or representatives of member organizations

6.6.1.2 The committee shall also be permitted to include other persons.

6.6.1.3 Representatives of member organizations shall be selected by their respective organizations, but other committee members shall be appointed to the committee by the fire chief.

6.6.2 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.

6.6.3* The committee shall hold regularly scheduled meetings and shall be permitted to hold special meetings whenever necessary.

6.6.3.1 Regular meetings shall be held at least once every 6 months.

6.6.3.2 Written minutes of each meeting shall be retained and shall be made available to all members.

6.6.4 Orientation training on best practices for safety committee processes and the duties and responsibilities of members, in addition to specific training on relevant NFPA standards governing the committee's areas of responsibility or specific tasks of individuals serving on the committee, shall be provided to the committee members by the fire department.

6.7 Records.

6.7.1* The fire department shall establish a data collection system and maintain permanent records of all accidents, injuries, illnesses, exposures to infectious agents and communicable diseases, or deaths that are job related.

6.7.1.1 The data collection system shall include the items identified in the national fire service database system.

6.7.2* The data collection system shall also maintain overall incident exposure data, as well as individual records of any occupational exposure to known or suspected products of combustion, carcinogens, contaminants, or other incident-related health hazards; toxic products; or infectious or communicable diseases.

6.7.3 The fire department shall ensure that a confidential health record for each member and a health data base are maintained.

6.7.4* The fire department shall maintain training records for each member indicating dates, subjects covered, satisfactory completion, and, if any, certifications achieved.

6.7.5 The fire department shall ensure that inspection, maintenance, repair, and service records are maintained for all vehicles and equipment used for emergency operations and training.

6.8 Appointment of the Health and Safety Officer.

6.8.1 The fire department HSO shall be responsible for the management of the occupational safety, health, and wellness program.

6.8.2 The fire chief shall appoint a designated fire department HSO.

6.8.3 The HSO shall meet the requirements defined in Chapter 4.

6.8.4 The fire chief shall ensure that the fire department HSO is given the authority to administer the health and safety program.

6.8.5 The HSO shall perform the duties defined in Chapter 4.

6.8.6 The fire chief shall make available such additional safety officers and resources as required to fulfill the requirements of the occupational safety, health, and wellness program to meet the requirements of Chapters 4 and 5.

Chapter 7 Training, Education, and Professional Development (NFPA 1500)

7.1 General Requirements.

7.1.1* The fire department shall establish and maintain a training, education, and professional development program with a goal of preventing occupational deaths, injuries, and illnesses.

7.1.2 The fire department shall provide training, education, and professional development for all department members commensurate with the duties and functions that they are expected to perform.

7.1.3 The fire department shall establish training and education programs that provide new members initial training, proficiency opportunities, and a method of skill and knowledge evaluation for duties assigned to the member prior to engaging in emergency operations.

7.1.4* The fire department shall restrict the activities of new members during emergency operations until the member has demonstrated the skills and abilities to complete the tasks expected.

7.1.5 The fire department shall provide all members with training and education on the department's risk management plan.

7.1.6 The fire department shall provide all members with training and education on the department's written procedures.

7.1.7 The fire department shall provide all members with a training, education, and professional development program commensurate with the emergency medical services that are provided by the department.

7.1.8* The fire department shall provide all members with a documented training and education program that covers all assigned personal protective equipment (PPE).

7.1.8.1 Training shall comply with applicable governing standards and follow the manufacturer's instructions and guidelines to include the following topics:

(1) The organization's overall program for the selection and use of protective ensembles, ensemble elements, and SCBAs
(2) Technical data package (TDP) where applicable
(3) Proper overlap and fit
(4) Proper donning and doffing (including emergency doffing)
(5) Construction features and function
(6) Usage and performance limitations (including physiological effects on user and effects of heat transfer on the protective ensemble)
(7) Recognizing and responding to indications of protective ensemble and SCBA failure
(8) Routine inspection cleaning, maintenance, and retirement
(9) Special incident procedure operation
(10) Proper storage

7.1.8.2 Maintenance of structural and proximity protective ensembles and ensemble elements shall be completed in accordance with NFPA 1851.

7.1.8.3 Maintenance of SCBA shall be completed in accordance with NFPA 1852.

7.1.8.4 Maintenance of protective ensembles for technical rescue incidents shall be completed in accordance with NFPA 1855.

7.1.9 As a duty function, members shall be responsible to maintain proficiency in their skills and knowledge, and to avail themselves of the professional development provided to the members through department training and education programs.

7.1.10 Training programs for all members engaged in emergency operations shall include procedures for the safe exit and accountability of members during rapid evacuation, equipment failure, or other dangerous situations and events.

7.1.11 Rapid intervention crew (RIC) and firefighter self-rescue training and exercises shall be conducted in accordance with NFPA 1407.

7.1.12 Members conducting fire inspections shall be trained in hazard identification, risk mitigation, and PPE selection that is relevant to the hazard.

7.1.13 All members who are likely to be involved in emergency operations shall be trained in the incident management and accountability system used by the fire department.

7.2 Member Qualifications.

7.2.1 All members who engage in structural firefighting shall meet the requirements of NFPA 1010.

7.2.2* All driver/operators shall meet the requirements of NFPA 1010.

7.2.3 All aircraft rescue firefighters (ARFF) shall meet the requirements of NFPA 1010.

7.2.4 All fire officers shall meet the requirements of NFPA 1021.

7.2.5 All wildland firefighters shall meet the requirements of NFPA 1140.

7.2.6* All members responding to hazardous materials incidents shall meet the operations level as required in NFPA 470.

7.2.7 All members who engage in fire investigations shall meet the requirements of NFPA 1033.

7.2.8 All members who engage in fire inspections shall meet the requirements of NFPA 1030.

7.3 Training Requirements.

7.3.1* The fire department shall adopt or develop training and education curriculums that meet the minimum requirements outlined in professional qualification standards covering a member's assigned function.

7.3.2 The fire department shall provide training, education, and professional development programs as required to support the minimum qualifications and certifications expected of its members.

7.3.3 Members shall practice assigned skill sets on a regular basis but not less than annually.

7.3.4 The fire department shall provide specific training to members when written policies, practices, procedures, or guidelines are changed and/or updated.

7.3.5* The respiratory protection training program shall meet the requirements of NFPA 1404.

7.3.6 Members who perform wildland firefighting shall be trained at least annually in the proper deployment of an approved fire shelter.

7.3.7 All live fire training and exercises shall be conducted in accordance with NFPA 1403.

7.3.8 All training and exercises shall be conducted under the direct supervision of a qualified instructor.

7.3.9* All members who are likely to be involved in emergency medical services shall meet the training requirements of the AHJ.

7.3.10* Members shall be fully trained in the use, limitations, care, and maintenance of the protective ensembles and ensemble elements assigned to them or available for their use.

7.3.11 All members shall meet the training requirements as outlined in Chapters 17 through 21.

7.3.12 All members shall meet the training requirements as outlined in NFPA 1581.

7.3.13 All members shall be provided initial and ongoing training in the risks associated with workplace exposure to products of combustion, carcinogens, contaminants, and other incident-related health hazards.

7.3.13.1* Members shall be trained to recognize when a workplace exposure has occurred and to know the control methods for personal decontamination, decontamination of protective clothing and equipment, and the risks of cross-contamination.

7.3.14 The fire department shall provide all members with training and education on behavioral health issues in the fire service to include the importance of addressing behavioral health problems, including, but not limited to, the impact of stigma associated with behavioral health and how to overcome it, substance use disorder, depression, post-traumatic stress, family and relationship concerns, factors that enhance resilience, suicide prevention, and available resources for behavioral health treatment.

7.3.15 The fire department shall provide all members with training and education on safe ground ladder and aerial ladder climbing in accordance with 8.1.10.

7.4 Special Operations Training.

7.4.1 The fire department shall provide specific and advanced training to members who engage in special operations as a technician.

7.4.2 The fire department shall provide specific training to members who are likely to respond to special operations incidents in a support role to special operations technicians.

7.4.3 Members expected to perform hazardous materials mitigation activities shall meet the training requirements of a technician as outlined in NFPA 470.

7.4.4 Members expected to perform technical operations at the technician level as defined in NFPA 2500 shall meet the training requirements specified in NFPA 1006.

7.5 Member Proficiency.

7.5.1 The fire department shall develop a recurring proficiency cycle with the goal of preventing skill degradation and potential for injury and death of members.

7.5.2 The fire department shall develop and maintain a system to monitor and measure training progress and activities of its members.

7.5.3* The fire department shall provide an annual skills check to verify minimum professional qualifications of its members.

7.6 Training Activities.

7.6.1* All training and exercises shall be conducted under the direct supervision of a qualified instructor.

7.6.2* All live fire training and exercises shall be conducted in accordance with NFPA 1403.

7.6.2.1 Emergency medical services shall be provided for live fire training exercises in accordance with Section 4.11 of NFPA 1403.

7.6.3* For non–live fire training exercises, fire departments shall conduct a risk assessment to determine the appropriate emergency medical capabilities to be available at the training site.

Chapter 8 Fire Apparatus, Equipment, and Drivers/Operators (NFPA 1500)

8.1 Fire Department Apparatus.

8.1.1* The fire department shall consider safety and health as primary concerns in the specification, design, construction, acquisition, operation, maintenance, inspection, and repair of all fire department apparatus.

8.1.1.1 If the fire apparatus is equipped with a vehicle data recorder, the AHJ shall develop operating procedures for uploading, monitoring, and reviewing the data.

8.1.2 All new fire apparatus shall be specified and ordered to meet the applicable requirements of NFPA 1900.

8.1.3 All new wildland fire apparatus shall be specified and ordered to meet the requirements of NFPA 1900.

8.1.4 All new automotive ambulances shall be specified and ordered to meet the requirements of NFPA 1900.

8.1.4.1* When a power-assisted patient cot or self-loading cot is utilized, it shall be installed, mounted, and retained in accordance with the provisions in NFPA 1900.

8.1.5 All new marine firefighting vessels shall be specified and ordered to meet the requirements of NFPA 1910.

8.1.6* Where tools, equipment, or respiratory protection are carried within enclosed seating areas of fire apparatus or the patient compartment of an ambulance, such items shall be secured in accordance with NFPA 1900.

8.1.7 When fire apparatus is refurbished, it shall be specified and ordered to meet the applicable requirements of NFPA 1910.

8.1.8 Fire departments that operate their own fixed-wing or rotary aircraft for fire department operations shall provide four-point restraints for all pilots and passengers, not including any EMS patients.

8.1.8.1 Members performing hoist rescue in the passenger area of the aircraft shall be secured by a vehicle safety harness or seat belt system.

8.1.9 All apparatus shall have hose storage areas that are equipped with a positive means to prevent unintentional deployment of the hose from the top, sides, front, and rear of the hose storage area while the apparatus is under way in normal operations.

8.1.10 Each person ascending or descending the ladder on the aerial apparatus shall do the following:

(1) Use a ladder belt and tether that meets the requirements of NFPA 2500.
(2) Use the three points of contact climbing method — one hand and two feet or two hands and one foot in contact at all times.
(3) At high ladder angles, ascend or descend by grasping the rungs and not the handrails.

8.1.10.1 Each aerial apparatus shall carry correctly sized ladder belts and tethers to accommodate all members authorized to climb the ladder or ride in the platform of the apparatus.

8.1.10.2 Persons working on a ladder shall be anchored to a structural feature of the ladder or platform when one of the following occurs:

(1) The device is in motion.
(2) They are not actively entering or exiting the platform.
(3) They are not actively climbing or descending the ladder.

8.1.10.3 Personnel ascending or descending aerial or ground ladders with equipment shall have that equipment tethered to themselves in a way that allows them full use of both feet and both hands.

8.1.11 Fire departments shall ensure that when operating at emergency incidents, engine exhaust is directed away from members operating at the incident.

8.2 Drivers/Operators of Fire Department Apparatus.

8.2.1* Fire apparatus shall be operated only by members who have successfully completed an approved driver training program commensurate with the type of apparatus the member will operate or by trainee drivers who are under the supervision of a qualified driver.

8.2.1.1 The AHJ shall be responsible for providing driver training instruction that complies with NFPA 1451 to members on the operation of specific fire department–owned pumpers and mobile water supply apparatus that hold greater than 999 gal (3782 L) of on-board water supply.

8.2.1.2 The AHJ shall establish the maximum speed that the apparatus shall operate at and post that speed on a placard mounted on the dash within view of the driver, stating "Do not exceed max speed of XX mph."

8.2.2* The driver of a fire department vehicle shall be required to possess a valid driver's license for the class of vehicle, as specified by the AHJ.

8.2.2.1 Fire department vehicles shall be operated in compliance with all applicable traffic laws, including special provisions pertaining to emergency vehicles as established by the AHJ, as well as specific rules, regulations, and procedures adopted by the fire department.

8.2.2.2 Pumpers and mobile water supply apparatus that do not have anti-lock brake systems (ABS) and carry over 999 gal (3782 L) of on-board water supply shall be operated in nonemergency mode at all times.

8.2.3* The fire department shall establish specific rules, regulations, and procedures relating to the operation of fire department vehicles in an emergency mode, including guidelines to establish when emergency response is authorized and when emergency response is not authorized.

8.2.4* Drivers of fire apparatus shall be directly responsible for the safe and prudent operation of the vehicles under all conditions.

8.2.4.1 When the driver is under the direct supervision of an officer, that officer shall also assume responsibility for the driver's actions.

8.2.5 Drivers shall not move fire apparatus until all persons on the vehicle are seated and secured with seat belts in approved riding positions, other than as specifically allowed in this chapter.

8.2.6 Drivers of fire apparatus shall obey all traffic control signals and signs and all laws and rules of the road of the jurisdiction for the operation of motor vehicles.

8.2.7* The fire department shall develop standard operating procedures for safely driving fire apparatus during nonemergency travel and emergency response and shall include specific criteria for vehicle speed, crossing intersections, traversing railroad grade crossings, the use of emergency warning devices, and the backing of fire apparatus.

8.2.7.1* Procedures for all responses shall emphasize that the safe arrival of fire apparatus to the incident scene is the first priority.

8.2.8* During emergency response, drivers of fire apparatus shall bring the vehicle to a complete stop under any of the following circumstances:

(1) When directed by a law enforcement officer
(2) At red traffic lights
(3) At stop signs
(4) At negative right-of-way intersections
(5) At blind intersections
(6) When the driver cannot account for all lanes of traffic in an intersection
(7) When other intersection hazards are present
(8) When encountering a stopped school bus with flashing warning lights

8.2.9 Drivers shall proceed through intersections only when the driver can account for all lanes of traffic in the intersection.

8.2.10* Upon arriving at unguarded railroad grade crossings during either emergency response or nonemergency travel, drivers of fire apparatus shall come to a complete stop and ensure that it is safe to proceed before crossing the railroad track(s).

8.2.11 Drivers shall use caution when approaching and crossing any guarded railroad grade crossing.

8.2.12 The fire department shall include information on the potential hazards of retarders, such as engine, transmission, and driveline retarders, in the driver training program and shall develop written procedures pertaining to the use of such retarders.

8.2.13 The fire department shall develop written procedures requiring drivers to discontinue the use of manual brake limiting valves, frequently labeled as a "wet road/dry road" switch, and requiring that the valve/switch remains in the "dry road" position.

8.2.14* Where members are authorized to respond to incidents or to fire stations in private vehicles, the fire department shall establish specific rules, regulations, and procedures relating to the operation of private vehicles in an emergency mode.

8.2.14.1 These rules and regulations shall be at least equal to the provisions regulating the operation of fire department vehicles.

8.2.14.2* These rules and regulations shall also apply to the use of emergency lighting equipment, audible warning devices, or both on private vehicles.

8.2.14.2.1 The rules and regulations shall specify the procedures for use of emergency lighting equipment and audible

warning devices and shall be in compliance with the motor vehicle laws of the jurisdiction.

8.2.14.2.2 Emergency lighting equipment and audible warning devices shall not be installed without the fire department's approval.

8.3 Riding in Fire Apparatus.

8.3.1* All persons riding in fire apparatus shall be seated and belted securely by seat belts in approved riding positions at any time the vehicle is in motion other than as allowed in 8.3.4, 8.3.5, and 8.3.6.

8.3.2 Standing or riding on tail steps, sidesteps, running boards, fully enclosed personnel areas, or in any other exposed position shall be specifically prohibited.

8.3.3 Seat belts shall not be released or loosened for any purpose while the vehicle is in motion, including the donning of respiratory protection equipment or protective clothing.

8.3.4* Members actively performing necessary emergency medical care while the vehicle is in motion shall be secured to the vehicle by a seat belt, or by a vehicle safety harness designed for occupant restraint, to the extent consistent with the effective provision of such emergency medical care.

8.3.4.1 All other persons in the vehicle shall be seated and belted in approved riding positions while the vehicle is in motion.

8.3.5* Fire departments permitting hose loading operations while the vehicle is in motion shall develop written standard operating procedures addressing all safety aspects.

8.3.6* Fire departments permitting tiller training, where both the instructor and the trainee are at the tiller position, shall develop written standard operating procedures addressing all safety aspects.

8.3.7* Helmets shall be provided for and used by members riding in open cab apparatus or open tiller seats.

8.3.7.1 Helmets shall not be worn by persons riding in an enclosed cab.

8.3.8* Eye protection shall be provided for members riding in open cab apparatus or open tiller seats.

8.3.9* On existing fire apparatus where there is an insufficient number of seats available for the number of members assigned to or expected to ride on that piece of apparatus, alternate means of transportation that provide seated and belted positions shall be used.

8.4 Inspection, Maintenance, and Repair of Fire Apparatus.

8.4.1* All fire apparatus shall be inspected, maintained, and tested in accordance with the applicable requirements of NFPA 1910.

8.4.2 Fire pumps on apparatus shall be service tested in accordance with the applicable requirements of NFPA 1910.

8.4.3 All aerial devices shall be inspected and service tested in accordance with the applicable requirements of NFPA 1910.

8.4.4 All fire apparatus shall be cleaned and disinfected in accordance with NFPA 1581.

8.5 Tools and Equipment.

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

8.5.2 The hearing conservation objectives of Chapters 6 through 16 shall be taken into account in the acquisition of new power tools and power equipment.

8.5.3 All new fire department ground ladders shall be specified and ordered to meet the applicable requirements of NFPA 1960.

8.5.4 All new fire hose shall be specified and ordered to meet the applicable requirements of NFPA 1960.

8.5.5 All new fire department spray nozzles shall be specified and ordered to meet the applicable requirements of NFPA 1960.

8.5.6* All equipment carried on fire apparatus or designated for training shall be inspected at least weekly and within 24 hours after any use.

8.5.7 Inventory records shall be maintained for the equipment carried on each vehicle and for equipment designated for training.

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

8.5.9 Firefighting equipment found to be defective or in unserviceable condition shall be removed from service and repaired or replaced.

8.5.10 All fire department equipment and tools shall be cleaned and disinfected in accordance with NFPA 1581.

8.5.11 All ground ladders shall be inspected and service tested in accordance with the applicable requirements of NFPA 1932.

8.5.12 All fire hose shall be inspected and service tested in accordance with the applicable requirements of NFPA 1962.

8.5.13 All fire extinguishers shall be inspected and tested in accordance with the applicable requirements of NFPA 10.

8.5.14 All fire department powered rescue tools shall meet the requirements of NFPA 1960.

8.5.15 All fire hose deployed during fire suppression operations that are exposed to contaminants shall be decontaminated in accordance with NFPA 1962 and the manufacturer’s recommendations prior to being returned to service.

Chapter 9 Protective Clothing and Protective Equipment (NFPA 1500)

9.1 General.

9.1.1* The fire department shall provide each member with protective ensembles, ensemble elements, and protective equipment designed to provide protection from hazards to which the member is likely to be exposed and that is suitable for the tasks the member is expected to perform.

9.1.1.1 A risk assessment for the need and, if necessary, selection of protective ensembles, ensemble elements, and protective equipment shall be conducted in accordance with 29 CFR 1910.132, "Personal Protective Equipment," and applicable NFPA standards.

9.1.1.2 The selection of applicable protective ensembles, ensemble elements, and other protective equipment shall be based on a selection program containing a risk assessment in compliance with 29 CFR 1910.132, "Personal Protective Equipment," and all applicable NFPA standards.

9.1.2 Protective ensembles, ensemble elements, and other protective equipment shall be used whenever the member is exposed or potentially exposed to the hazards for which it is provided.

9.1.3 The fire department shall require all members to wear or use all protective ensembles, ensemble elements, and other protective equipment specific to the operation in which members are engaged.

9.1.4 Structural firefighting and proximity firefighting protective ensembles and ensemble elements shall be cleaned as specified in NFPA 1851.

9.1.4.1 While on duty, members shall not wear personal clothing, accessories, or personal equipment that might not be suitable and appropriate to protect the member from the hazards to which the member could be exposed.

9.1.5* Where station/work uniforms are worn by members, such station/work uniforms shall meet the requirements of NFPA 1975.

9.1.6 The fire department shall provide training for its protective clothing and equipment program.

9.2 Protective Clothing for Structural Firefighting.

9.2.1* Members who engage in or are exposed to the hazards of structural firefighting shall be provided with and shall use a protective ensemble that shall meet the applicable requirements of NFPA 1971.

9.2.1.1* The member shall be provided with correctly sized and fitted protective clothing in accordance with manufacturer's recommendations.

9.2.2* The protective coat and the protective trousers shall have at least a 2 in. (50 mm) overlap of all layers so there is no gaping of the total thermal protection when the protective garments are worn.

9.2.2.1 The minimum overlap shall be determined by measuring the garments on the wearer, without SCBA, in both of the following positions:

(1) Position A — standing, hands together reaching overhead as high as possible

(2) Position B — standing, hands together reaching overhead, with body bent forward at a 90-degree angle, to the side (either left or right), and to the back

9.2.3 Single-piece protective coveralls shall not be required to have an overlap of all layers, provided there is continuous composite protection.

9.2.4 The fire department shall provide for the inspection, care, and maintenance of protective ensembles, ensemble elements, and components according to the manufacturer's instructions unless specialized care and maintenance requirements are specified by NFPA standards for specific types of protective ensembles, ensemble elements, or components; in which case the specialized care and maintenance requirements in the applicable NFPA standard shall apply.

9.2.4.1* When the fire department implements a care and maintenance operation, the fire department shall create procedures for advanced inspection, advanced cleaning, sanitization or disinfection, and specialized cleaning of protective ensembles and ensemble elements in accordance with NFPA 1851.

9.2.4.2 Where such cleaning is conducted in fire stations, the fire department shall provide a designated cleaning area that meets the requirements specified in NFPA 1581.

9.2.4.3* Where the organization implements an on-site care and maintenance operation, the organization shall follow applicable governing standards that provide for exposure control and protection of members performing the tasks associated with care and maintenance.

9.2.4.4 Specific roles, responsibilities, and authorities shall be assigned for inspection, care, and maintenance of protective clothing and equipment.

9.2.5 Gloves.

9.2.5.1 Fire departments that provide protective coats with protective resilient wristlets secured through a thumb opening shall be permitted to provide gloves of the gauntlet type for use with these protective coats.

9.2.5.2* Fire departments that do not provide such wristlets attached to all protective coats shall provide gloves of the wristlet type or other interface component for use with these protective coats.

9.2.6 The fire department shall adopt and maintain a protective clothing and protective equipment program that addresses the selection, care, maintenance, and use of structural firefighting protective ensembles, and training in its use.

9.2.6.1 The selection, care, and maintenance of protective ensembles for structural firefighting shall be as specified in NFPA 1851.

9.2.6.2 Specific roles, responsibilities, and authorities shall be assigned for inspection and maintenance.

9.2.7* The fire department shall develop specific procedures for rapid extrication of a downed firefighter that involves the use of specific equipment worn by the firefighter.

9.3 Protective Clothing for Proximity Firefighting Operations.

9.3.1* When determining the need for proximity ensembles, the organization shall perform a risk assessment as required by Chapter 5 of NFPA 1851.

9.3.2 When it is determined proximity protective ensembles and ensemble elements are required, members shall be provided with and shall use proximity firefighting protective ensembles and ensemble elements that are compliant with the proximity requirements of NFPA 1971.

9.3.2.1 The minimum overlap shall be determined by measuring the garments on the wearer, without SCBA, in both of the following positions:

(1) Position A — standing, hands together reaching overhead as high as possible
(2) Position B — standing, hands together reaching overhead, with body bent forward at a 90-degree angle, to the side (either left or right), and to the back

9.3.3 Single-piece proximity protective coveralls shall not be required to have an overlap of all layers, provided there is continuous full thermal and radiant heat protection.

9.3.4 Where SCBA is worn over or outside the proximity protective garment, the fire department shall inform the member of the potential high levels of radiant heat that can result in the failure of the SCBA.

9.3.4.1 The fire department shall require additional approved radiant reflective criteria, including but not limited to a protective cover, for the expected proximity firefighting exposures when the SCBA is worn over or outside the proximity protective garment.

9.4* Protective Clothing for Emergency Medical Operations.

9.4.1 The fire department shall develop standard operating procedures outlining the minimum required levels of protection based on a risk assessment of the medical care activities involved.

9.4.1.1 Members who perform emergency medical care or are otherwise likely to be exposed to blood or other body fluids shall be provided with emergency medical garments, emergency medical eye and face protection devices, emergency medical examination gloves, emergency medical gloves, emergency medical helmets, emergency medical CBRN protective ensembles, and emergency medical footwear that are compliant with NFPA 1999.

9.4.1.2 Fire department members who are issued and use protective equipment during medical incidents to protect from infectious agents shall be trained in the appropriate donning and doffing procedures in accordance with manufacturer's specifications.

9.4.2* Members shall wear emergency medical examination gloves when providing emergency medical care.

9.4.2.1 Patient care shall not be initiated before the gloves are in place.

9.4.2.2 Emergency medical work gloves shall be permitted to be used in place of emergency medical examination gloves in situations involving physical hazards.

9.4.3 Each member shall use emergency medical garments and emergency medical face protection devices, including particulate filtering masks, prior to any patient care during which large splashes of body fluids can occur, such as childbirth or situations involving spurting blood.

9.4.4 Contaminated emergency medical protective clothing shall be cleaned and disinfected or disposed of as specified in NFPA 1581 and in accordance with the manufacturer's directions.

9.4.4.1 Emergency medical examination gloves and emergency medical footwear covers shall not be reused and shall be disposed of after use.

9.4.4.2 Any item of emergency medical protective clothing that is not designated for "multiple use" shall not be reused and shall be disposed of after use.

9.4.4.3 Any emergency medical protection clothing ensemble, whether single use or multiple use, shall also be decontaminated, cleaned, or disposed of as specified in NFPA 1891.

9.5 Protective Clothing and Equipment for Fire Inspections.

9.5.1 The fire department shall conduct a risk assessment of all fire inspection activities.

9.5.2 The fire department shall develop standard operating procedures (SOPs) outlining the minimum required levels of protection.

9.6 Chemical-Protective Clothing for Hazardous Materials Emergency Operations.

9.6.1 Members who engage in operations during hazardous materials or CBRN emergencies shall be provided with and shall use chemical protective ensembles that meet the applicable requirements of NFPA 1990.

9.6.1.1* A risk assessment for the need, and, if necessary, selection of chemical protective clothing, ensembles, and ensemble elements shall be conducted by following the procedures provided in Chapter 10 of this standard and Chapter 7 of NFPA 1581.

9.6.2* The AHJ shall ensure that a selection process based on the decision logic provided in Annex B of NFPA 1891 is followed

9.6.3 All chemical-protective clothing shall be inspected and maintained as required by NFPA 1891, the technical data package, manufacturers' instructions, and manufacturers' recommendations.

9.6.4 All single-use chemical-protective clothing that receives an exposure to a chemical or a chemical mixture shall be disposed of if decontamination will not stop the chemical assault on the garment and the protective qualities will be diminished or nullified.

9.6.4.1 Disposal shall be in accordance with NFPA 1891 and applicable state or federal regulations.

9.7 Protective Clothing and Equipment for Wildland Firefighting.

9.7.1* The fire department shall establish SOPs for the use of wildland protective clothing and equipment.

9.7.2 Members who engage in or are exposed to the hazards of wildland firefighting operations shall be provided with and use protective garments and protective equipment that meet the requirements of NFPA 1977.

9.7.3* Members who engage in or are exposed to the hazards of wildland firefighting operations shall be provided with a fire

shelter, in a crush-resistive case, and wear it in such a way as to allow for rapid deployment.

9.7.4* The fire department shall ensure that personnel engaged in wildland firefighting operations have continuous access to potable water.

9.8 Protective Ensembles for Technical Rescue Operations.

9.8.1 The selection, care, and maintenance of protective ensembles for technical rescue operations shall be as specified in NFPA 1855.

9.8.2 Members of special teams whose primary function is search, rescue, recovery, and site stabilization operations for technical rescue incidents other than wilderness or water rescue incidents shall be provided with and shall use a protective ensemble that is certified as compliant with NFPA 1951.

9.8.2.1 Before emergency response personnel are assigned to technical rescue incidents, the incident commander shall perform a risk assessment of the expected hazards to determine the type of protective ensembles and other protective equipment that is needed.

9.8.2.2 Where the risk assessment indicates exposure to physical and thermal hazards are expected, utility technical rescue protective ensembles and ensemble elements shall be used.

9.8.2.3 Where the risk assessment indicates exposure to physical, thermal, liquid, and body fluid-borne pathogen hazards are expected, rescue and recovery technical rescue protective ensembles and ensemble elements shall be used.

9.8.2.4 Where the risk assessment indicates exposure to physical, thermal, liquid, and body fluid-borne pathogen hazards and CBRN agents in vapor, liquid splash, and particulate forms are expected during terrorism incident operations, CBRN technical rescue protective ensemble and ensemble elements requirements shall be used.

9.8.3 The protective coat and protective trousers shall have at least a 2 in. (50 mm) overlap of all layers so there is no gaping of the total thermal and barrier protection when the protective garments are worn.

9.8.3.1 The minimum overlap shall be determined by measuring the garments on the wearer, without respiratory protection, in both of the following conditions:

(1) Position A — standing, hands together reaching overhead as high as possible
(2) Position B — standing, hands together reaching overhead, with the body bent forward at a 90-degree angle, to the side (either left or right), and to the back

9.8.3.2 Single-piece protective coveralls shall not be required to have an overlap of all layers, provided there is continuous composite protection.

9.8.4 Members engaged in technical rescue operations that require respiratory protection shall be provided with and shall use respirators that are certified by NIOSH to 42 CFR 84, "Approval of Respiratory Protective Devices."

9.8.4.1* Where air-purifying respirators (APRs) and powered air-purifying respirators (PAPRs) are selected to provide the respiratory protection, the APRs and PAPRs shall be provided with the chemical or particulate filter elements that provide protection against the specific contaminants based upon the anticipated level of exposure risk associated with different response situations.

9.8.4.2* Where it cannot be determined that an APR or PAPR will provide effective protection against the contaminant, or if the identity of the contaminant is not known, SCBA shall be worn until it can be determined that other respiratory protection can be used.

9.8.4.3 Where SCBA are selected to provide the respiratory protection, the SCBA shall meet the applicable requirements of 9.13.1.

9.8.5 Members who engage in or are exposed to the hazards of search, rescue, recovery, and site stabilization for technical rescue shall be provided with and shall use primary eye protection that meets the requirements of NFPA 1951.

9.8.6 Technical rescue protective clothing and protective equipment shall be used and maintained in accordance with the manufacturer's instructions.

9.8.6.1 The fire department shall establish a maintenance and inspection program for technical rescue protective clothing and equipment.

9.8.6.2 Proper decontamination procedures for all technical rescue protective clothing and equipment shall be followed to prevent contamination of the user or support personnel.

9.9* Protective Clothing and Equipment for Surface Water Operations.

9.9.1 Members of special teams whose primary function is surface water search and rescue operations or other surface water incident operations, including operations in surface water, swift water, tidal water, surf, and ice, shall be provided with and shall use a protective ensemble that is certified as compliant with NFPA 1952.

9.9.2 Surface water operations protective clothing and protective equipment shall be used and maintained in accordance with the manufacturer's instructions.

9.9.3 The fire department shall establish a maintenance and inspection program for surface water operations protective clothing and equipment.

9.9.4 Proper decontamination procedures for all surface water protective clothing and equipment shall be followed to prevent contamination of the user or support personnel.

9.10 Protective Clothing for Fire Investigators.

9.10.1 The fire department shall conduct a risk assessment of all fire investigation activities.

9.10.2 The fire department shall develop SOPs outlining the minimum required levels of protection based on the timeline and type of activities that are occurring on the fireground.

9.10.3 When exposed to chemicals or particulates at the fire investigation scene, outer layer garments shall be doffed at the fire investigation scene.

9.10.4 Outer layer garments shall be discarded or cleaned in accordance with 9.2.4.

9.11 Respiratory Protection Program.

9.11.1 The fire department shall adopt and maintain a respiratory protection program that addresses the selection, care,

maintenance, and use of respiratory protection equipment (RPE), medical surveillance, training in respirator use, and the assurance of air quality.

9.11.1.1* The selection, care, and maintenance of open-circuit SCBA shall be as specified in NFPA 1852.

9.11.1.2 Training in respirator use shall include knowledge of hazards, hazard assessment, selection of RPE based on hazard exposure levels, fit testing of respirators, and respirator inspection.

9.11.2 The fire department shall develop and maintain standard operating procedures that are compliant with Chapters 6 through 16 and that address the use of respiratory protection.

9.11.3 Members shall be qualified at least annually in the use of RPE that they are authorized to use.

9.11.4* Reserve SCBA shall be provided to maintain the required number in service when maintenance or repairs are being conducted.

9.11.5 A reserve air supply shall be provided by use of reserve cylinders or by an on-scene refill capability, or both.

9.11.6 RPE shall be stored in a ready-for-use condition and shall be protected from damage or exposure to rough handling, excessive heat or cold, moisture, or other elements.

9.11.7* When engaged in any operation where members could encounter atmospheres that are IDLH or potentially IDLH, or where the atmosphere is undefined or hazardous (including overhaul), the fire department shall provide and require all members to use SCBA that has been certified as being compliant with NFPA 1981 or NFPA 1986 (for nonfirefighting operations).

9.11.8* Members using SCBA shall not compromise the protective integrity of the SCBA for any reason when operating in IDLH, potentially IDLH, or undefined or hazardous atmospheres (including overhaul) by removing the facepiece or disconnecting any portion of the SCBA that would allow the ambient atmosphere to be breathed.

9.11.9* Respiratory protection for any entry into the post-fire environment before or after overhaul shall be at least a NIOSH-certified self-contained breathing apparatus for at least the first 2 hours post-extinguishment.

9.12 Breathing Air. Breathing air used to fill SCBA cylinders shall meet the requirements specified in NFPA 1989.

9.13 Respiratory Protection Equipment.

9.13.1 SCBA.

9.13.1.1 All open-circuit SCBA that are purchased new shall be certified as compliant with NFPA 1981 (for firefighting operations) or NFPA 1986 (nonfirefighting operations) and shall also be certified by NIOSH as compliant with NIOSH *Standard for Chemical, Biological, Radiological, and Nuclear (CBRN) Open Circuit Self-Contained Breathing Apparatus (SCBA).*

9.13.1.2 Open-circuit SCBA shall be removed from fire service use in accordance with NFPA 1852.

9.13.1.3* Closed-circuit SCBA shall be permitted when long-duration SCBA is required.

9.13.1.3.1 Closed-circuit SCBAs shall not be permitted for use with NFPA 1990 ensembles.

9.13.1.4 Closed-circuit SCBA shall be NIOSH certified with a minimum rated service life of at least 2 hours and shall operate in the positive-pressure mode only.

9.13.2 Supplied-Air Respirators.

9.13.2.1 Supplied-air respirator units used shall be of the type and manufacture employed by the AHJ.

9.13.2.2 Supplied-air respirators other than SCBA shall not be used in IDLH atmospheres unless equipped with a NIOSH-certified emergency escape air cylinder and a pressure-demand facepiece.

9.13.2.3 Supplied-air respirators, Type C Pressure-Demand Class, shall not be used in IDLH atmospheres unless they meet manufacturers' specifications for that purpose.

9.13.3 Air-Purifying Respirators.

9.13.3.1 Fit-tested air-purifying respirators (APRs) shall be used only in non-IDLH atmospheres for those contaminants that NIOSH certifies them against.

9.13.3.2 The AHJ shall provide NIOSH-certified respirators that protect the user and ensure compliance with all other OSHA requirements.

9.13.3.3* The AHJ shall establish a policy to ensure canisters and cartridges are changed before the end of their service life.

9.13.3.4* Wildland firefighting respirators shall be compliant with NFPA 1984.

9.13.4 Combination Unit Respirator Systems.

9.13.4.1 All combination unit respirator systems shall be certified as compliant with NFPA 1987.

9.13.4.2 Combination unit respirator systems shall not be used for firefighting, water, or underwater operations.

9.13.4.3 Combination unit respirator systems shall be used as follows:

(1) Entry into and escape from immediately dangerous to life and health (IDLH) atmospheres when in open-circuit SCBA mode
(2) Entry into non-IDLH and escape from IDLH and non-IDLH atmospheres when in APR mode or PAPR mode

9.14 Fit Testing.

9.14.1* The facepiece seal capability of each member qualified to use RPE shall be verified by quantitative fit testing following procedures set forth in 29 CFR 1910.134, "Respiratory Protection," and ANSI/ASSE Z88.2, *Practices for Respiratory Protection*, on an annual basis and whenever new types of RPE or facepieces are issued.

9.14.2 The fit of the RPE of each new member shall be tested before the members are permitted to use RPE in a hazardous atmosphere.

9.14.2.1 Only members with a properly fitting facepiece shall be permitted by the fire department to function in a hazardous atmosphere with RPE.

9.14.3 Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be

accomplished by performing quantitative fit testing in the negative-pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

9.14.4 Records of facepiece fitting tests shall include at least the following information:

(1) Name of the member tested
(2) Type of fitting test performed
(3) Specific make and model of facepieces tested
(4) Pass/fail results of the tests

9.14.5* The protection factor produced shall be at least 500 for negative-pressure facepieces for the person to pass the fitting test with that make of full facepiece.

9.14.6* If a satisfactory fit cannot be achieved for an individual with one design of facepiece, the fire department shall work with the manufacturer of the respiratory protection equipment (RPE) to find a facepiece design that fits satisfactorily for that member.

9.15 Using Respiratory Protection.

9.15.1 Respirators shall not be worn when a member has any conditions that prevent a good face seal.

9.15.2 Nothing shall be allowed to enter or pass through the area where the respiratory protection facepiece is designed to seal with the face, regardless of the specific fitting test measurement that can be obtained.

9.15.2.1* Members who have a beard or facial hair at any point where the facepiece is designed to seal with the face or whose hair could interfere with the operation of the unit shall not be permitted to use respiratory protection at emergency incidents or in hazardous or potentially hazardous atmospheres.

9.15.2.2 These restrictions shall apply regardless of the specific fitting test measurement that can be obtained under test conditions.

9.15.3 When a member must wear spectacles while using full facepiece respiratory protection, the facepiece shall be fitted with spectacles in such a manner that they shall not interfere with the facepiece-to-face seal.

9.15.4* Spectacles with any strap or temple bars that pass through the facepiece-to-face seal area shall be prohibited.

9.15.5* Use of contact lenses shall be permitted during full facepiece respiratory protection use, provided that the member has previously demonstrated successful long-term contact lens use.

9.15.6 Any head covering that passes between the sealing surface of the respiratory protection facepiece and the member's face shall be prohibited.

9.15.7 The respiratory protection facepiece and head harness with straps shall be worn under the protective hoods.

9.15.8 The respiratory protection facepiece and head harness with straps shall be worn under the head protection of any hazardous chemical-protective clothing.

9.15.9 Helmets shall not interfere with the respiratory protection facepiece-to-face seal.

9.16 SCBA Cylinders.

9.16.1* SCBA cylinders made of aluminum alloy 6351-T6 shall be inspected annually, both externally and internally, by a qualified person.

9.16.2 SCBA cylinders shall be hydrostatically tested as required by the manufacturers and applicable governmental agencies.

9.16.3 SCBA cylinders used for structural firefighting shall have a minimum gas capacity of 59.99 ft^3 (1699 L) of air.

9.16.4 In-service SCBA cylinders shall be stored fully charged.

9.16.5 In-service SCBA cylinders shall be inspected weekly, monthly, and prior to filling, according to NIOSH requirements, CGA standards, and manufacturers' recommendations.

9.16.6* During filling of SCBA cylinders, all personnel and operators shall be protected from catastrophic failure of the cylinder, except as provided in 9.16.8.

9.16.7* Fire departments utilizing rapid filling of SCBA cylinders shall identify those unique emergency situations where rapid filling shall be permitted to occur.

9.16.8 The fire department risk assessment process shall incorporate standard operating procedures to identify those situations in 9.16.7.

9.16.9 Rapid refilling of SCBA while being worn by the user shall only be used under the following conditions:

(1) Manufacturer permitted, NIOSH-approved fill options are used.
(2) The risk assessment process has identified procedures for limiting personnel exposure during the refill process and has provided for adequate equipment inspection and member safety.
(3) An imminent life-threatening situation occurs that requires immediate action to prevent the loss of life or serious injury.
(4) Prior to a life-threatening situation occurring that could require immediate action to prevent the loss of life or serious injury.

9.16.10 An emergency escape breathing support system (EEBSS), also known as buddy breathing, shall be utilized where it is accomplished through the use of a NIOSH-approved connection that does not compromise the system integrity of either of the users giving or receiving air.

9.16.10.1 An EEBSS shall not be initiated if the "donor" cylinder has less than 21.18 ft^3 (600 L) of air remaining.

9.16.11 If a supplied source is not immediately available, transfilling of cylinders shall be done in accordance with the manufacturers' instructions.

9.16.12* Standardized IDLH exiting shall require that an exit strategy will be practiced when the SCBA cylinder reaches a level of 21.18 ft^3 (600 L) or more.

9.17 Personal Alert Safety System (PASS).

9.17.1* PASS devices shall meet the requirements of NFPA 1982.

9.17.2* Each member shall be provided with, use, and activate his or her PASS devices in all emergency situations that could

jeopardize that person's safety due to atmospheres that could be IDLH, in incidents that could result in entrapment, in structural collapse of any type, or as directed by the incident commander or safety officer.

9.17.3 Each PASS device shall be tested at least weekly and prior to each use and shall be maintained in accordance with the manufacturers' instructions.

9.18 Life Safety Rope and System Components.

9.18.1 All life safety ropes, harnesses, and hardware used by fire departments shall meet the applicable requirements of NFPA 2500.

9.18.2 Rope used to support the weight of members or other persons during rescue, firefighting, other emergency operations, or training evolutions shall be life safety rope and shall meet the requirements of NFPA 2500.

9.18.2.1 Life safety rope used for any other purpose shall be removed from service and destroyed.

9.18.3* Life safety rope used for rescue at fires or other emergency incidents or for training shall be permitted to be reused if inspected before and after each such use in accordance with the manufacturers' instructions and provided that the following criteria are met:

(1) The rope has not been visually damaged by exposure to heat, direct flame impingement, chemical exposure, or abrasion.
(2) The rope has not been subjected to any impact load.
(3) The rope has not been exposed to chemical liquids, solids, gases, mists, or vapors of any material known to deteriorate rope.

9.18.3.1 If the rope used for rescue at fires or other emergency incidents or for training does not meet the criteria set forth in 9.18.3(1), 9.18.3(2), or 9.18.3(3) or fails the visual inspection, it shall be destroyed.

9.18.3.2 If there is any question regarding the serviceability of the rope after consideration of the criteria listed in 9.18.3, the rope shall be taken out of service.

9.18.4 Rope inspection shall be conducted by qualified inspectors in accordance with rope inspection procedures established and recommended by the rope manufacturer to assure rope is appropriate for reuse.

9.18.5 Records shall be maintained to document the use of each life safety rope used at fires and other emergency incidents or for training.

9.19 Face and Eye Protection.

9.19.1 Primary eye protection appropriate for a given specific hazard shall be provided for and used by members exposed to that specific hazard.

9.19.1.1* Primary eye protection shall meet the requirements of ANSI Z87.1, *Practice for Occupational and Educational Eye and Face Protection.*

9.19.1.2 Face protection shall be in addition to primary eye protection unless SCBA is being used.

9.19.1.3 The helmet faceshield alone shall not be considered and shall not be used as primary eye protection.

9.19.2 The full facepiece of SCBA shall constitute face and eye protection when worn.

9.19.2.1 SCBA that has a facepiece-mounted regulator that when disconnected provides a direct path for flying objects to strike the face or eyes shall have the regulator attached in order to be considered face and eye protection.

9.19.3 When operating in the hazardous area at an emergency scene without the full facepiece of respiratory protection being worn, members shall wear primary eye protection that is designed to protect the member's eyes from the expected hazards.

9.20 Hearing Protection.

9.20.1* 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.

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

9.20.3* 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.

9.21 Ballistic Protective Equipment. In accordance with the requirements of NFPA 3000, the fire department shall provide ballistic protective equipment to personnel exposed to ballistic risks, or other hostile threats, consistent with expected duties.

9.22 New and Existing Protective Clothing and Protective Equipment.

9.22.1 All new protective clothing and protective equipment shall meet the requirements of the current edition of the respective NFPA standard for that protective clothing or protective equipment.

9.22.2 Existing protective clothing and protective equipment shall have been in compliance with the edition of the respective NFPA standard that was current when the protective clothing or protective equipment was manufactured.

9.22.3 Protective ensembles for structural firefighting and protective ensembles for proximity firefighting shall be retired in accordance with NFPA 1851.

9.22.4 Chemical protective clothing for hazardous materials, CBRN, and emergency medical operations shall be retired in accordance with NFPA 1891.

9.22.5 Open circuit SCBA for emergency services shall be retired in accordance with NFPA 1852.

9.22.6 The fire department shall establish a program for retirement and disposal of all protective clothing and equipment.

9.22.7 Unless otherwise subject to retirement requirements by an applicable NFPA standard(s), the fire department shall use the retirement criteria provided by the manufacturer.

Chapter 10 Emergency Operations (NFPA 1500)

10.1 Incident Management.

10.1.1* Emergency operations and other situations that pose similar hazards, including but not limited to training exercises, shall be conducted in a manner that recognizes hazards and prevents accidents and injuries.

10.1.2 An incident management system that meets the requirements of Chapters 17 through 21 shall be established with written standard operating procedures applying to all members involved in emergency operations.

10.1.3 The incident management system shall be utilized at all emergency incidents.

10.1.4 The incident management system shall be applied to drills, exercises, and other situations that involve hazards similar to those encountered at actual emergency incidents and to simulated incidents that are conducted for training and familiarization purposes.

10.1.5* At an emergency incident, the incident commander shall be responsible for the overall management of the incident and the safety of all members involved at the scene.

10.1.6 As incidents escalate in size and complexity, the incident commander shall divide the incident into divisions or groups and assign a safety officer to assess the incident scene for hazards or potential hazards.

10.1.7* At an emergency incident, the incident commander 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.

10.1.8* At an emergency incident, the incident commander shall have the responsibility for the following:

(1) Arrive on scene before assuming command
(2) Assume and confirm command of an incident and take an effective command position
(3) Perform situation evaluation that includes risk assessment
(4) Initiate, maintain, and control incident communications
(5) Develop an overall strategy and an incident action plan and assign companies and members consistent with the standard operating procedures
(6) Initiate and maintain a tactical worksheet or system, which maintains resource and personnel accountability and functions as the initial incident plan
(7) Assign or assume responsibility of the safety officer in accordance with Chapters 17 through 21.
(8) Develop an effective incident organization by managing resources, maintaining an effective span of control, and maintaining direct supervision over the entire incident, and designate supervisors in charge of specific areas or functions
(9) Review, evaluate, and revise the incident action plan as required
(10) Continue, transfer, and terminate command
(11) On incidents under the command authority of the fire department, provide for liaison and coordination with all other cooperating agencies
(12) On incidents where other agencies have jurisdiction, implement a plan that designates one incident commander or that provides for unified command
(13) Determine the need for, and appoint a safety officer in accordance with 18.9.6

10.1.8.1 Interagency coordination shall meet the requirements of Chapters 17 through 21.

10.1.9 The responsibilities of a safety officer, which shall apply to any incident, include the following:

(1) Communicate to the incident commander changing incident conditions, activities, operations, hazards, and unacceptable risk-taking circumstances that warrant a change in the incident action plan.
(2) Exercise emergency authority to stop, alter, or suspend activities that are judged to present an imminent threat to responder safety.
(3) Establish emergency incident hazard control zones, including collapse zones, based on current and changing fire conditions, building construction/structural factors, hazardous energy integrity, and incident operational effectiveness.
(4) Communicate emergency incident hazard control zones to the incident commander and responders in accordance with Section 10.7.
(5) Ensure that members operating in IDLH environments have adequate means of rapid egress.
(6) Ensure that personnel safety systems have been established, including required PPE levels, “mayday” rapid intervention crew(s), and a personal accountability system that is in accordance with Section 21.5.
(7) Monitor radio traffic so that barriers to effective communications are corrected.
(8) Ensure that effective responder rehabilitation efforts have been established in accordance with NFPA 1584.
(9) Communicate to the incident commander the need for assistant safety officers.
(10) Develop preventive measures for incident commander consideration to further reduce responder exposure to hazards.
(11) Ensure that contaminated personnel, tools, hose, equipment, and PPE are processed in accordance with contamination-reduction SOPs prior to being returned to service.
(12) Begin investigation procedures for accidents that have occurred within the incident area.
(13) Document safety officer actions, interventions, and post-incident follow-up needs.
(14) Prior to incident demobilization, transfer information related to known hazards to remaining member in charge or responsible party.

10.2 Communications.

10.2.1 The fire department shall establish and ensure the maintenance of a fire dispatch and incident communications system that meets the requirements of Chapters 17 through 21 of this standard and NFPA 1225.

10.2.2 While operating in a hot or warm zone, all personnel shall be equipped with a portable radio provided by the fire department.

10.2.3* The fire department standard operating procedures shall provide direction in the use of clear text radio messages for emergency incidents.

10.2.3.1 The standard operating procedures shall use "emergency traffic" as a designator to clear the radio traffic for an emergency affecting the incident.

10.2.3.2 This "emergency traffic" shall be permitted to be declared by any member who becomes aware of an emergency affecting the incident.

10.2.4* When a member has declared "emergency traffic," that person shall use clear text to identify the type of emergency, change in conditions, or tactical operations.

10.2.4.1 The member who has declared the "emergency traffic" shall conclude the "emergency traffic" message by transmitting "all clear, resume radio traffic" to end the emergency situation or to re-open the radio channels to communication after announcing the emergency message.

10.2.4.2 The standard operating procedures shall use "mayday" as a designator to identify when a member is in a life-threatening situation and in need of immediate assistance.

10.2.4.3 This "mayday" shall be permitted to be declared by any member who is in or who becomes aware of a member who is in a life-threatening situation and in need of immediate assistance.

10.2.4.4 The incident commander shall conclude the "mayday" by transmitting "Mayday cleared, resume normal radio traffic."

10.2.5* The fire department communications center shall start an incident clock when the first arriving unit is on-scene of a working structure fire or hazardous materials incident, or when other conditions appear to be time sensitive or dangerous.

10.2.5.1* The dispatch center shall notify the incident commander at every 10-minute increment with the time that resources have been on the incident until the fire is knocked down or the incident becomes static.

10.2.5.2 The incident commander shall be permitted to cancel the incident clock notification through the fire department communications center based on the incident conditions.

10.3 Crew Resource Management (CRM) During Emergency Operations.

10.3.1* The incident commander shall integrate Crew Resource Management (CRM) into the regular functions of incident command.

10.4 Risk Management During Emergency Operations.

10.4.1* The incident commander shall integrate risk management into the regular functions of incident command.

10.4.2 The incident commander shall determine the life safety profile of the incident and apply the most appropriate level of risk to first responders consistent with the principles in 10.4.2.1.

10.4.2.1* The concept of risk management shall be utilized on the basis of the following principles:

(1) Activities that present a significant risk to the safety of members shall be limited to situations where there is a potential to save endangered lives.
(2) Activities that are routinely employed to protect property shall be recognized as inherent risks to the safety of members, and actions shall be taken to reduce or avoid these risks.
(3) No risk to the safety of members shall be acceptable when there is no possibility to save lives or property.
(4) In situations where the risk to fire department members is excessive, activities shall be limited to defensive operations.

10.4.3* The incident commander shall evaluate the risk to members with respect to the purpose and potential results of their actions in each situation.

10.4.4 Risk management principles shall be routinely employed by supervisory personnel at all levels of the incident management system to define the limits of acceptable and unacceptable positions and functions for all members at the incident scene.

10.4.5* At significant incidents and special operations incidents, the incident commander shall assign a safety officer who has the expertise to evaluate hazards and provide direction with respect to the overall safety of personnel.

10.4.6 At terrorist incidents or other incidents involving potential CBRN exposure, the incident commander shall assess the risk to members and ensure that protective equipment appropriate for the risk is available for and used by members.

10.4.7* Fire departments shall conduct a risk assessment to determine the need to provide appropriate chemical antidote kits for members in the event of a CBRN incident.

10.5 Personnel Accountability During Emergency Operations.

10.5.1* The fire department shall establish written standard operating procedures for a personnel accountability system that is in accordance with Chapters 17 through 21.

10.5.2 The fire department shall consider local conditions and characteristics in establishing the requirements of the personnel accountability system.

10.5.3 It shall be the responsibility of all members operating at an emergency incident to actively participate in the personnel accountability system.

10.5.4 The incident commander shall maintain an awareness of the location and function of all companies or crews at the scene of the incident.

10.5.5 Officers assigned the responsibility for a specific division or group at an incident shall directly supervise and account for the companies and/or crews operating in their specific area of responsibility.

10.5.6 Company officers shall maintain an ongoing awareness of the location and condition of all company members.

10.5.7 Where assigned as a company, members shall be responsible to remain under the supervision of their assigned company officer.

10.5.8 Members shall be responsible for following personnel accountability system procedures.

10.5.9 The personnel accountability system shall be used at all incidents.

10.5.10* The fire department shall develop, implement, and utilize the system components required to make the personnel accountability system effective.

10.5.11* The standard operating procedures shall provide the use of additional accountability officers based on the size, complexity, or needs of the incident.

10.5.12 The incident commander and members who are assigned a supervisory responsibility for a division or group that involves multiple companies or crews under their command shall have assigned a member(s) to facilitate the ongoing tracking and accountability of assigned companies and crews.

10.6 Members Operating at Emergency Incidents.

10.6.1 The fire department shall provide an adequate number of personnel to safely conduct emergency scene operations.

10.6.1.1 Career fire departments shall meet the requirements of 5.2.4 of NFPA 1710.

10.6.1.2 Volunteer fire departments shall meet the requirements of Section 4.3 of NFPA 1720.

10.6.1.3* Operations shall be limited to those that can be safely performed by the personnel available at the scene.

10.6.2 No member or members shall commence or perform any firefighting function or evolution that is not within the established safety criteria of the organizational statement as specified in 6.2.1.

10.6.3 When inexperienced members are working at an incident, direct supervision shall be provided by more experienced officers or members.

10.6.3.1 The requirement of 10.6.3 shall not reduce the training requirements contained in 7.1.3 and 7.1.4.

10.6.4* Members operating in hazardous areas at emergency incidents shall operate in crews of two or more.

10.6.5* Crew members operating in hazardous areas shall be in communication with each other through visual, audible, or physical means or safety guide rope, in order to coordinate their activities.

10.6.6 Crew members shall be in proximity to each other to provide assistance in case of emergency.

10.6.7 In accordance with the requirements of 10.8.2, at least two members shall be present outside the hazardous area available for assistance or rescue at emergency operations where members are operating inside a hazardous area.

10.6.8* At aircraft rescue firefighting incidents, the initial IDLH shall be identified as the area from wingtip to wingtip for the specific aircraft.

10.6.8.1 After size-up, the incident commander shall adjust the IDLH designation as the situation dictates, to meet operational needs.

10.6.8.2 Aircraft rescue firefighting operations inside the area identified as the IDLH shall be in accordance with 10.6.4.

10.6.9* When members are operating at a structure fire or performing special operations, the highest available level of emergency medical care shall be standing by at the scene with medical equipment and transportation capabilities.

10.6.9.1 Basic life support (BLS) shall be the minimum level of emergency medical care.

10.6.10 Emergency medical care and medical monitoring at hazardous materials incidents shall be provided by or supervised by personnel who meet the minimum requirements of NFPA 470.

10.6.11 At all emergency operations, except as required in 10.6.9 and 10.6.10, the incident commander shall evaluate the risk to the members operating at the scene and, if necessary, request that at least BLS personnel and patient transportation be available.

10.6.12 When members are operating from aerial devices, they shall be secured to the aerial device with a system in compliance with NFPA 2500.

10.6.13 The incident commander shall ensure that personnel working in an IDLH atmosphere or hazardous area use applicable protective clothing and SCBA for risks that could be encountered.

10.6.13.1 Members performing overhaul operations shall wear applicable protective clothing and an SCBA.

10.6.13.2 When overhaul is not actively taking place, fire investigators or other members who enter the fire area following extinguishment shall wear protective clothing and a supplied-air respirator or an appropriate air-purifying respirator for respiratory hazards that could be encountered.

10.6.14* Members involved in water rescue shall be issued and wear personal flotation devices that meet US Coast Guard requirements.

10.6.15 Fire departments shall develop a standard operating procedure for operating near hazardous energy sources.

10.6.15.1* Procedures shall be developed for isolating personnel from the energized conductor.

10.6.15.2 All firefighters shall be made aware of the increased danger involving downed power lines when working, especially in limited visibility.

10.6.15.3 Fire department personnel shall not be permitted to move or cut electrical meters.

10.6.15.4 Firefighters shall locate and isolate downed electrical wires and wait for utility company personnel to disconnect the power to those wires.

10.6.15.4.1 In cases of known immediate life-threatening situations, properly trained and equipped personnel shall be permitted to mitigate the hazard.

10.6.15.5* Firefighters shall keep a minimum safe distance from an overhead or downed power line until the line is de-

energized and always function under the premise that a line is hot.

10.6.15.6 The incident commander shall convey and continually re-evaluate strategic decisions related to fireground electrical hazards to all personnel on the scene.

10.6.15.7 All firefighters shall be made aware of the hazards of applying a solid-stream water application around energized electrical conductors.

10.6.15.8 All firefighters shall be repeatedly trained in safety-related practices for working around electrical energy.

10.6.15.9 Fire departments shall develop a standard operating procedure for operating near rooftop photovoltaic (PV) generators.

10.6.15.9.1* Procedures shall be developed for isolating personnel from the energized equipment.

10.6.15.9.2 All firefighters shall be made aware of the increased danger involving rooftop PV equipment when working, especially in limited visibility.

10.6.15.9.3 Fire department personnel shall notify the incident commander of any PV electrical generators on the premises.

10.6.15.9.4 In cases of known immediate life-threatening situations, properly trained and equipped personnel shall be permitted to mitigate the hazard.

10.6.15.9.5* Firefighters shall keep a minimum distance from PV electrical generators until the system is de-energized and shall always function under the premise that the array is hot.

10.6.15.9.6 The incident commander shall convey to all personnel on the scene and continually re-evaluate strategic decisions related to fireground electrical hazards involving PV systems.

10.6.15.9.7 All firefighters shall be made aware of the hazards of applying a solid-stream water application around energized PV systems.

10.6.15.9.8 All firefighters shall be repeatedly trained in safety-related practices for working around PV systems.

10.6.16 Fire departments shall develop an SOP for operations during a wildland fire in accordance with NFPA 1140.

10.7 Emergency Incident Hazard Control Zones.

10.7.1 Emergency incident hazard control zones shall be established at every emergency incident to identify the level of risk to emergency responders and the appropriate level of PPE.

10.7.1.1 Hazard control zones shall be utilized for the purpose of emergency incident contamination control.

10.7.2 The perimeters of the emergency incident hazard control zones shall be designated by the incident commander.

10.7.3 If the perimeters change during the course of the incident, these changes shall be communicated to all members on the scene.

10.7.4* Emergency incident hazard control zones shall be as follows:

(1) Designated as no-entry, hot, warm, and cold (similar to hazardous materials incidents)
(2) Marked with the applicable colored hazard tape, signage, or other appropriate means wherever possible
(3) Communicated to all personnel attending the incident prior to being assigned to a hazard zone

10.7.4.1* Hot zone (red tape) is the area that presents the greatest risk of injury and contamination exposure to members and will often be classified as an IDLH atmosphere; therefore all members shall wear all of the PPE appropriate for the risks that might be encountered while in the hot zone.

10.7.4.1.1* All members operating within the hot zone shall have an assigned task.

10.7.4.2* Warm zone (yellow tape) shall serve as a limited access area for members directly aiding or in support of operations in the hot zone where significant risk of human injury can still exist.

10.7.4.2.1* The warm zone shall serve as a limited access area where preliminary exposure reduction strategies are employed and the threat of cross contamination persists.

10.7.4.3 Cold zone (green tape) shall establish the public exclusion or clean zone where there are minimal risks for human injury or exposure, or both, in this zone.

10.7.4.3.1 The cold zone shall be established outside the area where contamination is being mitigated.

10.7.4.4 No-entry zone (red/white chevron tape) is the area at an incident scene that no person(s) shall be permitted to enter due to imminent hazard(s), dangerous conditions, or the need to protect evidence.

10.7.4.4.1* Where a no-entry zone is designated, no personnel shall enter regardless of PPE.

10.7.4.4.2* Where red/white chevron tape is not readily available, no-entry zones shall be marked using three horizontal strands of yellow barrier tape, spaced 18 in. to 24 in. (460 mm to 610 mm) apart and securely fixed to stationary supports.

10.7.4.4.3* No-entry zones shall be illuminated to enhance nighttime visibility.

10.7.4.4.4 Where the threat of a building collapse exists, a collapse zone shall be established.

10.7.4.4.4.1 A collapse zone shall be a No-Entry Zone.

10.7.4.4.4.2* Collapse zones shall be established around the perimeter of the building at a distance that is equal to a minimum of 1.5 times the height of the building.

10.7.5 The incident commander shall ensure that the designation of the correct protective clothing and equipment is commensurate with the hazard in the zone the member will be operating in.

10.7.6 All officers and members shall ensure the correct use of PPE within that zone.

10.7.7 The process of utilizing emergency incident hazard control zones shall continue until the incident hazards have been mitigated or the incident is over.

10.8 Rapid Intervention for Rescue of Members.

10.8.1 The fire department shall provide personnel for the rescue of members operating at emergency incidents.

10.8.1.1 Personnel assigned to perform the function of the initial rapid intervention crew (IRIC) or the rapid intervention crew (RIC) shall be trained on the requirements of NFPA 1407.

10.8.2* In the initial stages of an incident where only one crew is operating in the hazardous area at a working structural fire, a minimum of four individuals shall be required, consisting of two members working as a crew in the hazardous area and two standby members present outside this hazardous area available for assistance or rescue at emergency operations where entry into the danger area is required.

10.8.2.1 The "initial stages" of an incident shall encompass the tasks undertaken by the first arriving company with only one crew assigned or operating in the hazardous area.

10.8.2.2 The standby members shall be responsible for maintaining a constant awareness of the number and identity of members operating in the hazardous area, their location and function, and time of entry.

10.8.2.3 The standby members shall remain in radio, visual, voice, or signal line communication with the crew.

10.8.2.4* One standby member shall be permitted to perform other duties outside of the hazardous area, such as apparatus operator, incident commander, or technician or aide, provided constant communication is maintained between the standby member and the members of the crew.

10.8.2.5 The assignment of any personnel, including the incident commander, the safety officer, or operators of fire apparatus, shall not be permitted as standby personnel if by abandoning their critical task(s) to assist or, if necessary, perform rescue, they clearly jeopardize the safety and health of any firefighter working at the incident.

10.8.2.5.1 No one shall be permitted to serve as a standby member of the firefighting crew when the other activities in which the firefighter is engaged inhibit the firefighter's ability to assist in or perform rescue, if necessary, or are of such importance that they cannot be abandoned without placing other firefighters in danger.

10.8.2.6 The standby member shall be provided with full protective clothing, protective equipment, and SCBA appropriate for the risk that might be encountered.

10.8.2.6.1 The full protective clothing, protective equipment, and SCBA shall be immediately accessible for use by the outside crew if the need for rescue activities inside the hazardous area occurs.

10.8.2.7 The standby members shall don full protective clothing, protective equipment, and SCBA prior to entering the hazardous area.

10.8.2.8 When only a single crew is operating in the hazardous area in the initial stages of the incident, this standby member shall be permitted to assist with, or if necessary perform, rescue for members of his or her crew, provided that abandoning his or her task does not jeopardize the safety or health of the crew.

10.8.2.9 Once a second crew is assigned or operating in the hazardous area, the incident shall no longer be considered in the "initial stage," and at least one rapid intervention crew shall be deployed that complies with the requirements of 10.8.2.

10.8.2.10 Initial attack operations shall be organized to ensure that if, on arrival at the emergency scene, initial attack personnel find an imminent life-threatening situation where immediate action could prevent the loss of life or serious injury, such action shall be permitted with less than four personnel.

10.8.2.10.1 No exception as permitted in 10.8.2.10 shall be allowed when there is no possibility to save lives.

10.8.2.10.2 Any such actions taken in accordance with 10.8.2.10 shall be thoroughly investigated by the fire department with a written report submitted to the fire chief.

10.8.3 As the incident expands in size or complexity, which includes an incident commander's requests for additional resources beyond a fire department's initial attack assignment, the dedicated rapid intervention crew (RIC) shall on arrival of these additional resources be either one of the following:

(1) On-scene members designated and dedicated as an RIC
(2) On-scene crew/company or crews/companies located for rapid deployment and dedicated as RICs

10.8.3.1 During firefighter rescue operations each crew/company shall remain intact.

10.8.4 An RIC shall consist of at least two members and shall be available for immediate rescue of a member or a crew.

10.8.4.1 Each RIC shall be fully equipped with protective clothing, protective equipment, SCBA, and any specialized rescue equipment that could be needed given the specifics of the operation under way.

10.8.5 At incidents where any SCBA being used is equipped with an RIC universal air connection (UAC), the RIC shall have the specialized rescue equipment necessary to complete the RIC UAC connection to a supplied air source.

10.8.5.1 Where applicable, the breathing air source and any hoses and connections shall meet the requirements of NFPA 1981 and be NIOSH certified to 42 CFR 84, "Approval of Respiratory Protective Devices."

10.8.5.2 The breathing air source shall have no less than 42.37 ft^3 (1200 L) of breathing air before entering the hazard area.

10.8.6 The composition and structure of a RIC shall be permitted to be flexible based on the type of incident and the size and complexity of operations.

10.8.7* The incident commander shall evaluate the situation and the risks to operating crews and shall provide one or more RICs commensurate with the needs of the situation.

10.8.8 In the early stages of an incident, which includes the deployment of a fire department's initial attack assignment, the RIC shall be in compliance with 10.2.5.1 and 10.8.2.5 and be either one of the following:

(1) On-scene members designated and dedicated as an RIC
(2) On-scene members performing other functions but ready to redeploy to perform RIC functions

10.8.9 The assignment of any personnel shall not be permitted as members of the RIC if abandoning their critical task(s) to perform rescue clearly jeopardizes the safety and health of any member operating at the incident.

10.8.10 During firefighter rescue operations each crew/company shall remain intact.

10.8.11 At least one dedicated RIC shall be standing by with equipment to provide for the rescue of members that are performing special operations or for members that are in positions that present an immediate danger of injury in the event of equipment failure or collapse.

10.9 Rehabilitation During Emergency Operations.

10.9.1* Personnel shall undergo rehabilitation in accordance with NFPA 1584.

10.9.1.1* Personnel shall not be permitted to use more than two SCBA cylinders before they are sent to rehabilitation operations.

10.9.2 Gross decontamination of PPE shall be performed prior to demobilization.

10.9.3 The rehabilitation process shall include on-scene personal hygiene immediately following the removal of PPE.

10.10 Scenes of Violence, Civil Unrest, or Terrorism.

10.10.1* Fire department members shall not become involved in any activities at the scene of domestic disturbance, civil unrest, an active shooter, or similar situations where there is ongoing violence, without the confirmed presence of law enforcement personnel who have deemed the scene secure.

10.10.2 Under no circumstances shall fire department equipment or personnel be used for crowd control or dispersion purposes.

10.10.3* The fire department shall develop and maintain, in conjunction with the local law enforcement agency/agencies, written standard operating procedures that establish a standardized approach to the safety of members, and that shall govern the roles and responsibilities at incidents that involve violence, active shooters, unrest, or civil disturbance.

10.10.3.1* Standard operating procedures shall include at a minimum the following objectives:

(1) In accordance with NIMS guidance, the establishment by fire departments and law enforcement of a single command post (CP) and operate using unified command (UC)
(2) Training with local law enforcement agencies that occurs at least annually
(3) Use of common communications and clear text terminology
(4) Consideration of secondary devices at the main scene and secondary scenes in close proximity to the main scene
(5) For events including incendiary or explosive devices, consideration of fire hazards secondary to the initial blast

10.10.4 The fire department shall be responsible for developing an interagency agreement with its law enforcement agency counterpart to provide protection for fire department members at situations that involve violence.

10.10.5* The fire department shall develop a standard communication method that indicates that an incident crew is faced with a life-and-death situation requiring immediate law enforcement intervention.

10.10.6 Such violent situations shall be considered essentially a law enforcement event, and the fire department shall coordinate with the law enforcement incident commander throughout the incident.

10.10.7 The fire department incident commander shall identify and react to situations that do involve or are likely to involve violence.

10.10.8 In such violent situations, the fire department incident commander shall communicate directly with the law enforcement incident commander to ensure the safety of fire department members.

10.10.9 In such violent situations, the fire department incident commander shall stage all fire department resources in a safe area until the law enforcement agency has secured the scene.

10.10.10 When violence occurs after emergency operations have been initiated, the fire department incident commander shall either secure immediate law enforcement agency protection or shall withdraw all fire department members to a safe staging area.

10.10.11 At civil disturbances or similar incidents where protective equipment generally considered as law enforcement–related is in use, that protective equipment shall be utilized by members who are trained and qualified to use such equipment.

10.10.12 Fire department companies or crews that provide support to law enforcement agency special weapons and tactics (SWAT) operations shall receive special training.

10.10.12.1 Special standard operating procedures shall be developed that describe the training and safety of these fire department crews for such operations.

10.10.12.2 These activities shall be considered as special operations for the purpose of Chapters 6 through 16.

10.11 Post-Incident Analysis.

10.11.1 The fire department shall establish requirements and standard operating procedures for a standardized post-incident analysis of significant incidents or those that involve serious injury or death to a firefighter.

10.11.2 The fire department safety officer shall be involved in the post-incident analysis as defined in Chapters 4 and 5.

10.11.3 The analysis shall conduct a basic review of the conditions present, the actions taken, and the effect of the conditions and actions on the safety and health of members.

10.11.4 The analysis shall identify any action necessary to change or update any safety, health, and wellness program elements to improve the welfare of members.

10.11.5 The analysis process shall include a standardized action plan for such necessary changes.

10.11.5.1 The action plan shall include the change needed and the responsibilities, dates, and details of such actions.

Chapter 11 Traffic Incident Management (NFPA 1500)

11.1 Reserved.

11.2 Emergency Operations at Traffic Incidents. Each department shall establish, implement, and enforce standard operating procedures (SOPs) regarding emergency operations involving traffic.

11.2.1 Each department shall provide training on roadway hazards and safety for all personnel.

11.2.2 Each department shall communicate, collaborate, and coordinate with other response agencies when developing SOPs, planning, and training for incident response.

11.3 Placement of Apparatus and Warning Devices. Apparatus and warning devices shall be placed to provide a safe work zone as well as early warning to the motoring public with specific consideration to be given to topography and weather conditions (uphill/upwind) and to protect firefighters from traffic.

11.4* Use of Apparatus as a Blocking Device. First-arriving apparatus shall be placed in a blocking position order to protect the scene and create a safe work zone from oncoming traffic.

11.4.1* Placement of blocking apparatus upstream/downstream shall be dependent upon traffic conditions and incident hazards.

11.4.2* When a temporary TIMA has been established, the apparatus in the blocking position shall reduce warning lighting.

11.4.3 All additional responding vehicles, when arriving on the scene, shall be positioned downstream from the blocking vehicle with warning lighting reduced, unless their function requires placement before the temporary control zone.

11.4.3.1 Ambulances shall be positioned in a location to allow patient loading away from traffic.

11.4.4 The blocking apparatus shall establish a buffer between it and the work area.

11.4.5* The following warning devices shall be used to warn oncoming traffic of the emergency operations and the hazards to member(s) operating at the incident:

(1) A minimum of five 28 in. or greater (710 mm or greater) fluorescent orange traffic cones with double reflective markings that are compliant with the *Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)*
(2) Retroreflective warning signs compliant with the *MUTCD*

11.4.6 Warning devices shall be placed and utilized with considerations given to visual obstruction such as hills, curves, blind spots, or unusual localized weather conditions such as fog or rain.

11.4.7 Members shall position themselves and any victims in a safe area.

11.4.8 Members shall park or stage unneeded fire apparatus and personal vehicles off the roadway or downstream of the incident work area.

11.4.9* When member assignments place them in potential conflict with motor vehicle traffic, they shall wear a high-visibility garment that meets ANSI 107, *American National Standard for High-Visibility Apparel and Accessories*, unless exposed to fire, heat, flame, or hazardous materials where NFPA-compliant turnout gear is more appropriate.

11.4.10* Personnel assigned to traffic control shall receive training that is commensurate with their duties and in accordance with NFPA 1091.

Chapter 12 Facility Safety (NFPA 1500)

12.1 Safety Standards.

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

12.1.2 Fire departments shall provide facilities for disinfecting, cleaning, and storage in accordance with NFPA 1581.

12.1.3* All fire stations and fire department facilities shall comply with NFPA *101*.

12.1.3.1 Approved smoke detectors shall be installed outside every sleeping area in the immediate vicinity of the bedrooms and on all levels of the station, including basements.

12.1.3.2 In buildings other than those protected throughout by an approved, supervised automatic sprinkler system installed in accordance with 30.3.5 of NFPA *101* approved smoke detectors shall be installed in every sleeping room.

12.1.3.3 When smoke detectors activate, the general evacuation alarm signal shall operate throughout the entire building.

12.1.3.4 All existing and new fire department facilities shall have carbon monoxide detectors installed in locations in sleeping and living areas, such that any source of carbon monoxide would be detected before endangering the members.

12.1.3.5 Areas not subject to occupancy by persons who are hearing impaired shall not be required to comply with the provisions for visible signals.

12.1.3.6 Cooking equipment in fire department buildings shall comply with NFPA 96.

12.1.4 New buildings housing emergency fire, rescue, or ambulance services shall be protected throughout by approved supervised automatic sprinkler systems. [**1:**13:3.2.3]

12.1.5* The fire department shall prevent exposure to firefighters and contamination of living and sleeping areas from exhaust emissions through the use of direct or source capture systems.

12.1.6 No component of the protective ensemble shall be allowed in sleeping and living areas.

12.1.7 All fire department facilities shall be designated smoke free and tobacco free, which includes electronic delivery systems known as e-cigarettes, e-cigars, e-hookahs, and e-pipes.

12.1.8* Stations utilizing poles to provide rapid access to lower floors shall ensure that the area around the pole hole is secured by means of a cover, enclosure, or other means to prevent someone from accidentally falling through the pole hole.

12.1.8.1 Landing pads shall be inspected yearly and replaced when they are cracked, worn, or exhibit loss of resiliency to ensure firefighter safety.

12.1.9 Fire station apparatus bay doors shall comply with the safety features, meant to prevent entrapment and injury, detailed in Section 31 of UL 325, *ANSI/CAN/UL Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.*

12.2 Inspections.

12.2.1 All fire department facilities shall be inspected at least annually to provide for compliance with Section 12.1. *(See Annex K.)*

12.2.2 Inspections shall be documented and recorded.

12.2.3 All fire department facilities shall be inspected at least monthly to identify and provide correction of any safety or health hazards.

12.2.4 A copy of all required health and safety inspection reports shall be provided to the fire department health and safety officer.

12.3* Maintenance and Repairs. The fire department shall have an established system to maintain all facilities and to provide prompt correction of any safety or health hazard or code violation.

12.4 Station Alerting.

12.4.1 The fire station alerting system shall incorporate the following features:

(1)* Progressive alerting tones
(2) Pre-announcement of a call such as initial soft voice messaging
(3) Where lighting is automatically activated by the alerting system, graduated fire station interior lighting to allow the eyes to adjust in the sleeping quarters, or be focused solely on pathways
(4)* Zoned alerting if the station has more than one company housed in the facility

12.5 Contamination Control Areas Within Fire Department Facilities.

12.5.1 All fire stations shall have areas designated indicating the likelihood of contamination exposure.

12.5.2 Contamination control areas shall be designated as follows:

(1) Red — Spaces likely to be exposed to contaminants
(2) Yellow — Transition spaces between a contaminated (red) area and a clean (green) area, where contamination control takes place
(3) Green — Clean spaces such as living, kitchen, dormitory, and so forth

12.5.2.1* Each area shall have an isolated HVAC system.

12.5.2.2 The green area shall be higher pressure than areas leading into it.

12.5.2.3 The transition area (yellow) shall include restroom and shower facilities.

12.5.3 Following use, areas exposed to contamination shall be cleaned and decontaminated to reduce exposure.

12.5.4 The decontamination of contaminated PPE, contaminated clothing, and contaminated equipment shall take place in the red area.

12.5.5 PPE and firefighting equipment that is stored in a firehouse when not in use shall be in an enclosed and ventilated locker or in an enclosed area off the apparatus floor that prevents exposure to contaminants or UV light.

12.5.5.1 All protective clothing ensembles and ensemble elements shall be stored in accordance with NFPA 1851.

12.5.5.2 Wet, soiled, or contaminated protective clothing and equipment shall not be permitted in areas designated for clean storage.

12.5.6* Ice machines, refrigerators, and freezers shall not be located in red or yellow areas.

12.5.7* Where bulk storage of consumable products are stored in red or yellow areas, steps shall be taken to reduce exposure to residual diesel exhaust and off-gassing of contaminated equipment and PPE.

Chapter 13 Medical and Physical Requirements (NFPA 1500)

13.1 Medical Requirements.

13.1.1 Fire department candidates shall meet the medical requirements specified in NFPA 1582.

13.1.2 Members of a fire department shall be evaluated as specified in NFPA 1582, Chapter 7 and meet the medical requirements specified in NFPA 1582, Chapter 9.

13.1.3 Medical evaluations shall take into account the risks and the functions associated with the individual's duties and responsibilities.

13.1.4 Fire departments that operate their own fixed wing or rotary aircraft shall require fire department pilots who perform firefighting operations from the air to maintain a commercial Class 1 medical examination in conformance with Federal Aviation Agency (FAA) regulations for commercial pilots.

13.1.5* Members who are under the influence of alcohol or drugs shall not participate in any fire department operations or other duties.

13.2 Physical Performance Requirements.

13.2.1* The fire department shall develop physical performance requirements for candidates and members who engage in emergency operations.

13.2.2 Candidates shall be qualified as meeting the physical performance requirements established by the fire department prior to entering into a training program to become a firefighter.

13.2.3 Members who engage in emergency operations shall be annually qualified as meeting the physical performance requirements established by the fire department.

13.2.4 Members who do not meet the required level of physical performance shall not be permitted to engage in emergency operations.

13.2.5 Members who are unable to meet the physical performance requirements shall enter a physical performance rehabili-

tation program to facilitate progress in attaining a level of performance commensurate with the individual's assigned duties and responsibilities.

13.3 Health and Fitness.

13.3.1 The fire department shall establish and provide a health and fitness program that meets the requirements of NFPA 1583 to enable members to develop and maintain a level of fitness that allows them to safely perform their assigned functions.

13.3.2 The maintenance of fitness levels specified in the program 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.

13.3.3 The fire department health and fitness coordinator shall administer all aspects of the physical fitness and health enhancement program.

13.3.4 The health and fitness coordinator shall act as a direct liaison between the fire department physician and the fire department in accordance with NFPA 1582.

13.4 Confidential Health Data Base.

13.4.1* The fire department shall ensure that a confidential, permanent health file is established and maintained on each individual member.

13.4.1.1 The individual health file shall be separate from the personal/human resources file and shall be maintained in accordance with the *Americans with Disabilities Act (ADA)*, the *Fair Labor Standards Act (FLSA)*, and 29 CFR 1910.1020, "Toxic and Hazardous Substances."

13.4.2 The individual health file shall record the results of regular medical evaluations, physical performance tests, occupational illnesses or injuries, and any events that expose the individual to known or suspected hazardous materials, toxic products, or contagious diseases.

13.4.3* 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.

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

13.5 Infection Control.

13.5.1* The fire department shall actively attempt to identify and limit or prevent the exposure of members to infectious and contagious diseases in the performance of their assigned duties.

13.5.2 The fire department shall operate an infection control program that meets the requirements of NFPA 1581.

13.6 Fire Department Physician.

13.6.1 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 and fitness for various duties.

13.6.2 The fire department physician shall provide medical guidance in the management of the occupational safety, health, and wellness program.

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

13.6.4* The fire department physician shall be readily available for consultation and to provide professional services on an urgent basis.

13.6.4.1 Availability shall be permitted to be accomplished by providing access to a number of qualified physicians.

13.6.5 The fire department shall require that the health and safety officer and the health fitness coordinator maintain a liaison with the fire department physician to ensure that the health maintenance process for the fire department is maintained.

13.7 Fitness for Duty Evaluations.

13.7.1 Fire departments shall establish a process to evaluate the ability of a member to perform essential job functions.

13.7.2 The process to evaluate the fitness of a member to perform essential job functions shall be conducted by a qualified person and confirmed by the fire department physician.

13.7.3 When a member is determined to be unable to perform the essential job functions, the member shall be provided assistance, treatment, or both that is intended to return the member to a condition that will allow him or her to perform the essential job functions.

13.7.4 A member who has been determined to be unable to perform the essential job functions will only be returned to duty when the fire department physician has confirmed that the member can perform the essential job functions.

Chapter 14 Behavioral Health and Wellness Programs (NFPA 1500)

14.1* Behavioral Health Program.

14.1.1* The fire department shall provide access to a behavioral health program for its members and their immediate families.

14.1.1.1 The behavioral health program shall at a minimum include the capability to provide diagnostic assessment, short-term counseling, crisis intervention, and referral for the behavioral health and personal problems outlined in 14.1.1.2 that could adversely affect the member, as well as fire department work performance.

14.1.1.2 The behavioral health program shall include, but is not limited to, the following elements:

(1) Substance use disorder
(2) Anxiety
(3) Depression
(4) Suicidality
(5) Potentially traumatic events
(6) Acute stress reactions
(7) Grief

(8) Financial problems
(9) Relationship and/or family problems

14.1.1.3 Behavioral health programs shall include a peer support program component.

14.1.2* The behavioral health program shall, when clinically indicated, refer members and their immediate families for appropriate clinical and specialty care from providers equipped to deliver evidence-based treatment consistent with current best practices and standards of care.

14.1.2.1 The fire department shall adopt and follow clear written policies regarding alcoholism, substance use disorder, and other behavioral conditions that can adversely affect performance or fitness for duty, or both.

14.1.2.1.1 When fitness for duty is in question, such fitness shall be evaluated and determined in accordance with Section 13.7.

14.1.2.2 Confidentiality of Behavioral Health Information.

14.1.2.2.1* Specific information concerning behavioral health interactions shall be released by the fire department physician only with written permission from the candidate or member, and/or as required by law.

14.1.2.2.2 No fire department personnel, other than the behavioral health specialist or appropriate clinical staff, shall have access to a member's records without the express written consent of that member.

14.1.2.2.3 Behavioral health records shall include all written and oral communications, notes, and reports arising out of a peer support interaction.

14.1.2.2.4 Member records maintained as part of a behavioral health program shall not become part of a member's personnel file.

14.1.2.2.5 Member participation in a behavioral health program shall not become part of a member's personnel file.

14.1.2.3* The fire department shall adopt and follow clear, written policies consistent with applicable statutes, regulations, and standards respecting records, confidentiality, data gathering and reporting, and protection and release of privileged information related to its behavioral health program.

14.1.2.3.1 These policies shall identify to whom and under what conditions information can be released and what use, if any, can be made of records for purposes of research, program evaluation, and quality assurance.

14.1.2.3.2 Member records maintained by a behavioral health program shall not become part of a member's personnel file.

14.1.3* The fire department shall provide access to a program to assist members in creating personal resiliency to stress and traumatic exposures.

14.1.4* The fire department shall provide access to a program that supports the enhancement of behavioral health and wellness through leadership development and organizational/group dynamics evaluation and training.

14.1.5 Members shall be permitted to utilize accrued leave, including medical leave, or be assigned alternate duty where possible, to access behavioral health services.

14.1.6 A member who voluntarily seeks treatment for substance use or behavioral health problems, and who is compliant with the individual treatment and rehabilitation plan established by the behavioral health specialist and/or treating specialist(s), shall not be subject to discipline related to the disclosure.

14.2 Peer Support Program.

14.2.1 The fire department shall develop a peer support program that shall consist of trained peer supporters who are available to provide talk-based support to members and connect members with services, when indicated.

14.2.2 Peer support programs shall ensure that peer supporters are provided with the knowledge and skills to provide support, educate members about behavioral health, serve as a bridge to behavioral health programs and community resources, and build or enhance their peer support programs.

14.2.3 To serve on a fire department peer support team, an individual peer support team member shall receive and have access to the following:

(1) Eighteen hours of introductory training on the following topics:
    (a) Behavioral health issues that commonly impact firefighters
    (b) Active listening skills
    (c) Confidentiality
    (d) General and suicide risk assessment
    (e) Crisis intervention
    (f) Action plan and referral
    (g) Member outreach
    (h) Peer support program development
    (i) Self-care
(2)* Eight hours of annual continuing education on behavioral topics
(3) Ongoing case consultation and peer supervision from other trained peer team members
(4) Ongoing case consultation and clinical supervision from a licensed mental health provider
(5) An initial and annual behavioral health screening/wellness visit with a licensed mental health provider

14.2.4 The fire department shall develop and adopt written policies to identify the following:

(1) How peer supporters are recruited
(2) Criteria to be a peer support team member
(3) Team composition
(4) How assistance from a peer support team member is activated after a potentially traumatic event
(5) Training and continuing education requirements for peer support team members
(6) How members can access the peer support program

14.2.5 The fire department shall designate a peer support team leader whose responsibilities include the following:

(1) Overseeing the operation of the peer support team
(2) Assisting the fire department in developing relevant policies, procedures, and guidelines on the operation of the peer support team
(3) Evaluating the impact of the peer support program on the fire department
(4) Assisting in team selection

(5) Organizing peer support team training
(6) Developing a referral network for members
(7) Conducting regular fire department outreach

14.2.6 The fire department shall designate a behavioral health specialist whose responsibilities include the following:

(1) Providing technical assistance, information, and advice to the fire department as it relates to behavioral health problems, questions, and concerns
(2) Assisting with fire department behavioral health training
(3) Managing new peer support team applications and onboarding processes
(4) Helping to revise and develop curricula for behavioral health programs
(5) Coordinating and delivering presentations to fire department members on behavioral health.
(6) Assisting with administrative aspects of peer support team deployments as necessary

14.2.7* Information shared between a member who seeks peer support assistance and the peer support team member shall be strictly confidential unless otherwise required to be reported by law.

14.2.8 Any records regarding interactions between a peer support team member and a peer shall not become part of a member's fire department personnel file or subject to disclosure to the fire department.

14.3 Wellness Program.

14.3.1* The wellness program shall provide prevention strategies and health promotion activities related to identified risk factors for firefighter health and safety.

14.3.2* The wellness program shall, wherever possible, employ prevention strategies and programs supported by peer-reviewed, published research for which published empirical research supports their safety and efficacy.

14.3.3 The fire department shall develop a policy on the use of tobacco products for all members.

14.3.3.1 The fire department shall provide a smoking/tobacco use cessation program to incumbent tobacco users that is nonpunitive and operates with short-term and long-term goals.

14.3.3.2 The fire department shall develop a policy that candidates be tobacco-free upon appointment and throughout their length of service to the department.

14.3.3.3 Members shall not use tobacco products inside the worksite, within or on fire department apparatus, or inside training facilities.

14.3.3.4* The fire department shall develop and implement SOP/Gs to provide strategies to manage the effects of acute and chronic sleep and circadian rhythm disruption that lead to sleep deprivation, fatigue, and other adverse health effects.

14.3.4 A fire department shall ensure that a member resiliency component, which includes training and resources, is a part of their safety, health and wellness program.

14.3.4.1* Resiliency training shall be provided to new members with periodic refresher training to incumbent members.

Chapter 15 Occupational Exposure to Potentially Traumatic Events (NFPA 1500)

15.1* General.

15.1.1 The fire department physician shall maintain medical oversight of all clinical aspects of the program.

15.1.1.1 The fire department shall maintain a relationship with an appropriately licensed behavioral health specialist as defined by the occupational safety and health program in NFPA 1582.

15.1.1.2* The behavioral health specialist shall have knowledge and experience working with the fire department culture and traumatic exposure.

15.1.2* The fire department shall adopt and utilize a written policy outlining its protocols to address occupational exposure to potentially traumatic events.

15.1.3 The fire department shall clearly outline assistance and intervention available to affected members.

15.1.3.1 Participation in clinically related interventions shall be voluntary and at the member's election.

15.1.3.2* Where specialty treatment is indicated, referral shall be made to licensed specialists who are certified and competent to provide specialized evidence-based treatment.

15.2* Reporting Requirements for Occupational Exposure to Potentially Traumatic Events. A personal exposure report shall be utilized by the member to document an exposure to a potentially traumatic event.

15.3 Exposure Report Retention and Access.

15.3.1 Exposure reports shall be retained by the fire department for 30 years *(see OSHA 3110, Access to Medical and Exposure Records)*.

15.3.2 The fire department shall provide members with access to their exposure records.

Chapter 16 Exposure to Contaminants (NFPA 1500)

16.1* Training. The AHJ shall provide training on the hazards associated with exposure to contaminants.

16.1.1 Training on the hazards associated with exposure to contaminants shall include the following:

(1) Awareness
(2) Prevention
(3) Mitigation
(4) Risk factors

16.2 Prevention and Mitigation. The AHJ shall provide standard operation procedures (SOPs) related to the prevention and mitigation of firefighter exposure to contaminants.

16.3 Risk of Exposure to Contaminants. An incident area where the risk of exposure to contaminants exists shall be treated as a hot zone as defined by Section 10.7.

16.4 Cleaning and Maintenance.

16.4.1 The AHJ shall provide for the cleaning and maintenance of protective clothing and equipment.

16.4.2* The fire department shall ensure that all contaminated protective clothing and protective equipment are immediately removed from service following the incident and cleaned in accordance with NFPA 1851 prior to returning the protective clothing and protective equipment to service.

16.4.3 The fire department shall ensure that all contaminated firefighting equipment is immediately removed from service following the incident where it was exposed to the products of combustion, soiled, or contaminated and decontaminated according to manufacturer's instructions.

16.5 Mitigation of Contaminant Exposure.

16.5.1 Protective clothing and equipment shall be worn during all phases of fireground operations.

16.5.2 Respiratory protection during overhaul shall consist of an SCBA.

16.5.2.1 APR Use in the Post-Fire Environment.

16.5.2.1.1* An APR with an appropriate chemical cartridge shall be permitted only when all of the following conditions are met:

(1) The APR is used 2 hours after extinguishment.
(2) No active overhaul is taking place.
(3) Positive pressure ventilation is in place.
(4) Continuous air monitoring is in place and levels are within the following acceptable short-term occupational exposure limits:
    (a) Hydrogen cyanide (HCN) ≤ 4.7 ppm
    (b) Carbon monoxide (CO) ≤ 35 ppm
    (c) Total volatile organic compounds (VOCs) ≤20 ppm

16.5.2.1.2* A NIOSH-approved air-purifying respirator (APR) with a P-100 filter and a cartridge that, at a minimum, protects against organic vapors, acid gases, and formaldehyde shall be worn to provide protection against post-fire atmospheres.

16.5.2.1.3 A filter changeout schedule shall be established for the environmental hazards present at each incident.

16.5.3 The fire department shall ensure that following on-scene operations all contaminated PPE are subjected to preliminary exposure reduction while on the scene in accordance with NFPA 1851.

16.5.3.1* Following preliminary exposure reduction, contaminated PPE shall be taken out of service and isolated and contained in accordance with NFPA 1851 prior to leaving the scene.

16.5.3.2 Following on-scene operations, contaminated firefighting equipment shall be cleaned in accordance with manufacturer instructions.

16.5.4 Fire department personnel engaged in cleaning of soiled or contaminated protective clothing and equipment shall wear at least the following safety equipment to mitigate exposure to dermal and airborne contaminants:

(1) Disposable examination gloves (nitrile or other type)
(2) Coveralls/protective garments
(3) A fit-tested P-100 filtering facepiece

16.6 Incident Contaminant Reduction and Personal Hygiene.

16.6.1 The AHJ shall adopt procedures to mitigate on-scene exposure to contaminants for personnel exiting the hot zone.

16.6.2 The AHJ shall train its members on the doffing and containment of contaminated protective clothing and equipment.

16.6.3 Training on doffing and containment of contaminated protective clothing and equipment shall include prevention of possible cross-contamination.

16.6.4 The AHJ shall provide SOPs related to the decontamination of firefighters exposed to contaminants.

16.6.5 The AHJ shall provide decontamination facilities and equipment for firefighters exposed to contaminants.

16.6.6* Firefighter personal hygiene following exposure to contaminants shall include the following:

(1) Wiping skin areas near the interfaces of protective clothing and equipment with soap and water, or at a minimum, with a wet wipe immediately after doffing and before consuming any food or drink
(2) Taking a soap-and-water shower as soon as reasonably possible
(3) Changing into a clean uniform after a shower

16.6.7 Any clothing worn beneath contaminated PPE shall be cleaned in accordance with NFPA 1581.

16.6.8 When personnel respond to an incident in their personal vehicle, the fire department shall ensure that the member is decontaminated.

16.7 Exposure Reporting Requirements.

16.7.1 Following a possible exposure to toxic substances or harmful biological, chemical, or physical agents, the appropriate exposure report(s) shall be completed.

16.7.1.1 Members that experience symptoms associated with occupational exposure to toxic substances or harmful biological, chemical, or physical agents shall request medical evaluation and report the exposure to their supervisor for appropriate exposure report documentation.

16.7.2* Incident Exposure Report. An incident exposure report shall be utilized to document the possible exposure to toxic substances or harmful biological, chemical, or physical agents during an incident or response.

16.7.2.1 The incident exposure report shall be completed as part of an electronic incident reporting system, where responding members are linked with the incident response record.

16.7.3 Personal Exposure Report. A personal exposure report shall be utilized by the member to document an exposure or an injury-related exposure to toxic substances or harmful biological, chemical, or physical agents.

16.7.3.1* A personal exposure report shall be completed by the member following an exposure to toxic substances or harmful biological, chemical, or physical agents during a training exercise or an incident or response.

16.7.3.2 Following a training event, or other non-incident-related exposure, where toxic substances or harmful biological, chemical, or physical agents are present, a personal exposure report shall be completed by the member.

16.8 Exposure Report Retention and Access.

16.8.1 Exposure reports shall be retained by the fire department for 30 years *(see OSHA 3110, Access to Medical and Exposure Records).*

16.8.2 The fire department shall provide members access to their exposure records.

Chapter 17 System Implementation (NFPA 1561)

17.1 Administration.

17.1.1* Scope. Chapters 17 through 21 of this standard contain the minimum requirements for an incident management system to be used by emergency services to manage all emergency incidents.

17.1.2 Purpose. The purpose of Chapters 17 through 21 is to define and describe the essential elements of an incident management system that meets the requirements of Chapter 10 of this standard; 29 CFR 1910.120(q)(3), "Procedures for handling emergency response;" and HSPD-5, "Management of Domestic Incidents."

17.1.3 Application.

17.1.3.1* Chapters 17 through 21 apply to organizations providing rescue, fire suppression, emergency medical services, hazardous materials mitigation, special operations, and other emergency services.

17.1.3.2 Chapters 17 through 21 do not apply to facility fire brigades that might also be known as emergency brigades, emergency response teams, fire teams, plant emergency organizations, or mine emergency response teams.

17.2* General. The incident management system shall provide structure and coordination to the management of emergency incident operations to provide for the safety and health of emergency services organization (ESO) responders and other persons involved in those activities.

17.3 Planned Events. The ESO shall utilize the incident management system (IMS) during planned events to allow smooth transition to an emergency incident, if necessary.

17.4* Risk Management.

17.4.1 The incident management system shall integrate risk management into the regular functions of incident command.

17.4.2 The risk management plan shall meet the requirements of Chapter 6.

17.5 System Flexibility.

17.5.1* The incident command system is flexible and shall be implemented based upon the needs of the incident.

17.5.2 Chapters 17 through 21 shall not restrict any jurisdiction from exceeding these minimum requirements or from adopting a system tailored to meet local needs while satisfying the minimum requirements of Chapters 17 through 21.

17.6 Implementation.

17.6.1* The ESO shall adopt the National Incident Management System (NIMS) to manage all emergency incidents.

17.6.2 The incident management system shall be designed to meet the particular characteristics of the incident based on its size and complexity, as well as the operating environment.

17.6.3 The incident management system shall be defined and documented in writing.

17.6.4 Standard operating procedures (SOPs) shall include the requirements for implementation of the incident management system and shall describe the options that are available for application according to the needs of each particular situation.

17.6.5* The ESO shall prepare and adopt written plans based on the incident management system that address the requirements of the different types of incidents that can be anticipated.

17.6.6* The plans described in 17.6.5 shall address both routine and unusual incidents and shall provide standardized procedures and supervisory assignments that can be applied to the needs of situations of differing types, sizes, and complexities.

17.6.7 The incident management system shall be utilized at all emergency incidents.

17.6.8 The incident management system shall be applied to drills, exercises, and other situations that involve hazards similar to those encountered at actual emergency incidents and to simulated incidents that are conducted for training and familiarization purposes.

17.6.9* The incident management system prescribed by Chapters 17 through 21 shall be used by trained individuals and applied in a manner that meets the needs of each particular situation.

17.6.10 The incident commander shall apply the incident management system in a manner that is appropriate for the circumstances of each specific situation.

17.7 Resource Accountability.

17.7.1* The ESO shall develop and routinely use a system to maintain accountability for all resources assigned to the incident with special emphasis on the accountability of personnel.

17.7.2 The system shall maintain accountability for the location and status condition of each organizational element at the scene of the incident.

17.7.3 The system shall include a specific means to identify and keep track of responders entering and leaving hazardous areas, especially where special protective equipment is required.

17.7.4* The system shall provide for the use of additional accountability personnel based on the size, complexity, or needs of the incident.

17.7.5* Responder accountability shall be maintained and communicated within the incident management system when responders in any configuration are relocated at an incident.

17.7.6* Supervisors shall maintain accountability of resources assigned within the supervisor's geographical or functional area of responsibility.

17.7.7 Supervisors assigned to specific geographic areas shall be located in areas that allow each supervisor to maintain accountability of his or her assigned resources.

17.7.8 Where assigned as a company/crew/unit, responders shall be responsible to remain under the supervision of their assigned company/crew/unit supervisor.

17.7.9 Responders shall be personally responsible for following the personnel accountability system procedures.

17.7.10* Responders who arrive at an incident in or on marked apparatus shall be identified by a system that provides an accurate accounting of the responders on each apparatus.

17.7.11* Responders who arrive at the scene of the incident by means other than emergency response vehicles shall be identified by a system that accounts for their presence and their assignment at the incident scene.

17.7.12* The accountability system shall include an SOP for the evacuation of responders from an area where an imminent hazard condition is found to exist.

17.7.13 The SOP described in 17.7.12 shall indicate the method to be used to immediately notify all responders.

17.7.14* The system shall also provide a process for the rapid accounting of all responders at the incident scene.

17.8 Incident Scene Rehabilitation.

17.8.1* The incident commander shall consider the circumstances of each incident and make provisions for the rest and rehabilitation of responders operating at the scene.

17.8.2 After rehabilitation, responders shall receive a new incident assignment, return to the staging area to await an incident assignment, or be released from the incident.

17.8.3 The incident scene rehabilitation shall meet the requirements of NFPA 1584.

17.9 System Qualification Process.

17.9.1 ESOs shall develop and implement a qualification process specific to their organization to ensure that members who function in the incident management system (IMS) are qualified to function in incident management positions in the types of incidents that the ESO would be expected to respond to.

17.9.2 The qualification system shall be developed to support a typing scheme as follows:

(1) *Type 5 — Local, discipline specific.* An organization formed at an incident capable of operating an incident management system from its initial establishment up to and including a full operational period as defined by the agency or jurisdiction.

(2)* *Type 4 — Local, agency, or jurisdiction specific.* An organized team capable of operating an incident management system that could involve resources from multiple agencies from the discovery of, and arrival at, an incident up to and including a full operational period as defined by the agency or jurisdiction.

(3)* *Type 3 — Regional or state, multi-agency/multi-jurisdiction.* An organized team capable of operating an incident management system that involves resources from multiple agencies and jurisdictions from the local though federal level for multiple operational periods.

(4)* *Type 2 — State or national.* An organized team, qualified and certified at the federal level, capable of operating an incident management system that involves utilization of significant numbers of state- and federal-level resources.

(5) *Type 1 — National.* An organized team, qualified and certified at the federal level, capable of operating an incident management system that involves utilization of significant numbers of federal-level resources.

17.9.3 ESOs can elect to qualify members of the organization at or above Type 5, which shall be the minimum level of qualification to function in the incident management system.

17.9.4 ESO specific incident management system qualification processes shall be compatible with the National Incident Management System.

17.10 Training and Qualifications.

17.10.1* All responders who are involved in emergency operations shall be trained in the incident management and personnel accountability systems to the anticipated level of their involvement.

17.10.2 The ESO shall provide refresher training at least annually.

17.10.3 Responders who are expected to perform as incident commanders or to be assigned to supervisory levels within the command structure shall be trained in and familiar with the incident management system and the particular levels at which they are expected to perform.

17.10.4 The ESO shall define training and experience requirements.

17.10.5* The incident commander shall make assignments based on the availability, qualifications, and expertise of individuals.

Chapter 18 Functions and Structure of Command (NFPA 1561)

18.1 Command Structure.

18.1.1* All positions identified within Chapters 17 through 21 shall meet the requirements of NFPA 1026.

18.1.2 The particular levels to be utilized in each situation shall depend on the nature of the incident and the scale and complexity of emergency services organization (ESO) activities at the scene.

18.1.3 The incident management system shall be modular to allow the application of only those elements that are necessary at a particular incident and to allow elements to be activated or deactivated as the needs of the incident change with time.

18.1.4 The system shall provide for a routine process of escalation as additional resources are utilized.

18.1.5 The incident commander shall determine which levels and elements of the incident management system are to be implemented in each case and shall develop the command structure for each incident by assigning supervisory responsibilities according to SOPs.

18.1.6 An effective span of control shall be determined by the ability of each supervisory position to monitor the activities of

assigned subordinates and to communicate effectively with them.

18.1.7 The incident management system shall define standardized supervisory assignments.

18.1.8 The assignments described in 18.1.7 shall be activated upon assignment by the incident commander.

18.1.9* Standardized supervisory assignments shall define the role, authority, and responsibilities of assigned responders.

18.1.10 Assignments shall be defined by function or by location at the scene of the incident.

18.1.11 The scope of authority to be delegated at each supervisory level shall be outlined in SOPs.

18.1.12 An assignment that is defined by function shall be based on performing or supervising a particular function or set of functions.

18.1.13 An assignment that is defined by location shall be based on supervising all activities that are conducted within a designated area.

18.1.14 The area shall be defined by standard terminology or specified by the incident commander at the time of assignment.

18.1.15 The incident commander shall have the authority to modify standard assignments or to apply them in a manner that suits the particular needs of an incident.

18.1.16 The incident commander shall be responsible to clearly identify the parameters of an assignment when deviating from the standard assignments in 18.1.9.

18.2 Coordination.

18.2.1* Where the incident is under the command authority of a single ESO, the incident commander shall provide for liaison and coordination with all assisting and cooperating agencies.

18.2.2 Where the incident is under the overall jurisdiction of another agency that has not implemented an incident management system, the ESO shall utilize the incident management system to manage its own operations and coordinate its activities with the agency having overall jurisdiction.

18.3 Incident Commander.

18.3.1 The incident commander shall have overall authority for management of the incident.

18.3.1.1 The incident commander, using the incident command system, shall have the authority to delegate responsibilities.

18.3.1.2* The incident commander shall not establish an incident within an incident.

18.3.1.3 The incident commander shall delegate responsibilities using the incident command system to manage emergency situations such as mayday, emergency traffic, medical conditions, and other responder emergencies.

18.3.1.4 The incident commander shall have the responsibilities and duties of all unassigned incident command system positions.

18.3.2 The incident commander shall ensure that command safety measures complying with Chapter 21 are in place.

18.3.2.1 At emergency operations, the incident commander shall evaluate the risk to members operating at the scene and, if necessary, request that at least BLS personnel and patient transportation be available as required in Chapter 10.

18.3.2.2 When members are performing special operations, the highest available level of emergency medical care shall be standing by at the scene with medical equipment and transportation capabilities.

18.3.2.2.1 BLS shall be the minimum level of emergency medical care.

18.3.2.3 Emergency medical care and medical monitoring at hazardous materials incidents shall be provided by or supervised by personnel who meet the minimum requirements of NFPA 470.

18.3.3* The incident management system shall clearly identify who is in overall command at the scene for the duration of the incident.

18.3.4* SOPs shall provide for one individual to assume the role of incident commander from the beginning of operations at the scene of each incident.

18.3.5 The incident management system shall provide for the transfer of the assignment of incident commander to take place one or more times during the course of an incident.

18.3.6* SOPs shall define the circumstances and procedures for transferring command to another on-scene officer/member and shall specify to whom command shall be transferred.

18.3.7 The incident commander shall ensure that a post-incident analysis complying with Chapters 6 through 16 is conducted.

18.3.8* Command Post.

18.3.8.1 In establishing a command post, the incident commander shall ensure the following:

(1) The command post is located in or tied to a vehicle or physical location to establish presence and visibility.
(2) The command post includes radio capability to monitor and communicate with assigned tactical, command, and designated emergency traffic channels for that incident.
(3) The location of the command post is communicated to the communications center.
(4) The incident commander, or his or her designee, is present at the command post.
(5)* The command post is located in the cold zone of an incident.

18.3.9 The incident commander shall authorize release of information to the news media.

18.3.10* The incident commander shall interface with any department operation center (DOC), area command, or, in the absence of a DOC or area command, an established emergency operation center.

18.3.11 The incident commander shall establish a unified command at a multi-agency or multi-jurisdictional incident when agencies have jurisdictional responsibility for an incident, either geographic or functional.

18.3.12 The incident commander shall be responsible for controlling communications on the tactical, command, and designated emergency traffic channels for that incident.

18.3.13 The incident commander shall maintain an awareness of the location and function of all companies or units at the scene of the incident.

18.3.14 The incident commander shall be responsible for overall responder accountability for the incident.

18.3.15* The incident commander and members who are assigned a supervisory responsibility that involves multiple companies or crews under their command shall have an additional person (staff aide) assigned to facilitate the tracking and accountability of the assigned companies or crews.

18.3.15.1 When vests are used at a command post or in positions of an incident management team, the following colors shall be used:

(1) IC and command staff positions: white vests
(2) Operations chief and subordinate positions: red vests
(3) Planning section chief and subordinate positions: dark blue vests with the following exceptions:
    (a) Intelligence/investigation position: tan vests
    (b) If intelligence/investigation becomes a section: tan vests
(4) Logistics section chief and subordinate positions: orange vests
(5) Finance/administration section chief and subordinate positions: green vests
(6) Technical specialists: yellow vests

18.3.15.2* The on scene safety officer shall wear additional garments that shall be unique and identifiable to the position.

18.3.16 Incident Action Plan.

18.3.16.1 The incident commander shall be responsible for developing and/or approving an incident action plan (IAP).

18.3.16.2* This IAP shall be communicated to all staged and assigned members at an incident.

18.3.16.3 For Type IV and Type V incidents, the incident commander shall communicate the IAP verbally to all on-scene resources.

18.3.17 The incident commander shall keep the operations section chief, those in supervisory level positions, and the safety officer informed of the strategy, tactical objectives and any changing conditions.

18.3.18* The incident commander shall evaluate the risk to responders with respect to the purpose and potential results of their actions in each situation.

18.3.19 In situations where the risk to emergency service responders is excessive, as defined in 18.3.20, activities shall be limited to defensive operations.

18.3.20* The following risk management principles shall be utilized by the incident commander:

(1) Activities that present a significant risk to the safety of responders shall be limited to situations that have the potential to save endangered lives.
(2) Activities that are routinely employed to protect property shall be recognized as inherent risks to the safety of responders, and actions shall be taken to reduce or avoid these risks.
(3) No risk to the safety of responders shall be acceptable where there is no possibility to save lives or property.

18.3.21 The incident commander shall be responsible for developing the command organization for the incident.

18.3.22 The incident commander shall coordinate activity for all command and general staff positions.

18.3.23 The incident commander shall conduct planning meetings as required.

18.3.24 The incident commander shall be responsible for reviewing, evaluating, and revising the IAP and overall strategy of the incident.

18.3.25 The incident commander shall be responsible for the continuation, transfer, and termination of command at an incident.

18.3.26 The incident commander shall order the demobilization of resources when appropriate.

18.3.27 The incident commander shall provide for control of access to the incident scene.

18.3.28 The incident commander shall make appropriate incident status notifications to key people, officials, and the agency administrator.

18.4* Intelligence/Investigation. The intelligence/investigation function shall be established when required.

18.5* Unified Command.

18.5.1* The ESO shall develop a system for a unified command in coordination with more than one agency or jurisdiction having responsibilities at an emergency incident.

18.5.2 The incident management system shall include a provision to designate one incident commander or to establish unified command.

18.6* Area Command.

18.6.1* When area command is implemented, it shall have the responsibility to set overall strategy and priorities, allocate critical resources according to priorities, ensure that incidents are managed in accordance with the incident management system, and ensure that objectives are met and strategies are followed.

18.6.2 Area command shall establish a tactical area within which to allocate resources.

18.6.3 The relationships between an area commander, a zone commander, and incident commanders, and between an area commander(s) and agency communication centers, shall be established prior to an incident.

18.6.4 Area command shall determine if the dispatch center will continue to allocate resources directly to the incident(s), or to locations from which area command can dispatch the resources into the identified tactical area.

18.6.5* If the resources are to be allocated to a location from which area command will dispatch the resources, the local dispatch center shall give all incidents within the tactical area to the area command post and the resources to the area command staging area for allocation.

18.7* Multi-Agency Coordination System. When it is deemed necessary to coordinate resources at the regional level, a multi-agency coordination system (MACS) shall be established based upon direction by the authority having jurisdiction to facilitate the coordination and support between agencies or jurisdictions.

18.8 Supervisory Personnel.

18.8.1* Risk management principles shall be employed routinely by supervisory personnel at all levels of the incident management system to define the limits of acceptable and unacceptable positions and functions for all responders at the incident scene.

18.8.2* Supervisory personnel shall assume responsibility for activities within their span of control, including responsibility for the safety and health of responders and other authorized persons within their designated areas.

18.8.3 Objectives.

18.8.3.1 Supervisory personnel shall work toward assigned objectives, within the overall strategy defined by the incident commander.

18.8.3.2* Supervisory personnel shall, on a regular basis, report progress, or lack of progress, in meeting those objectives as well as any deviation from established plans.

18.8.4 Supervisory personnel at each level of the command structure shall receive direction from, and shall provide progress reports to, supervisory personnel at a higher level.

18.8.5 Supervisory personnel shall be alert to recognize conditions and actions that create a hazard within their spans of control.

18.8.6 All supervisory personnel shall have the authority and responsibility to take immediate action to correct imminent hazards and to advise their supervisory personnel regarding such action.

18.8.7 Supervisory personnel shall coordinate their activities with other supervisory personnel at the same level and shall provide direction to supervisory personnel at a lower level or to responders within their spans of control.

18.8.8 Conflicting Orders.

18.8.8.1* Where conflicting orders are received at any level of the incident management system, the individual receiving the conflicting order shall inform the individual giving the order that a conflict exists.

18.8.8.2 If the conflicting order is required to be carried out, the individual giving the conflicting order shall so inform the individual who provided the initial order.

18.8.9 Supervisory Awareness.

18.8.9.1 All supervisory personnel shall maintain a constant awareness of the position and function of all responders assigned to operate under their supervision.

18.8.9.2 This awareness shall serve as the basic means of accountability that shall be required for operational safety.

18.9 Command Staff.

18.9.1 Command staff functions shall include those elements of the incident management system that operate in direct support of the incident commander and contribute to the overall management of the incident.

18.9.2* SOPs shall define the roles and responsibilities of responders assigned to command staff functions.

18.9.3 Command Staff Positions.

18.9.3.1 Three specific staff positions shall be identified as follows:

(1) Public information officer
(2) Liaison officer
(3) Safety officer

18.9.3.2* Additional staff functions shall be assigned depending on the nature and location of the incident or on requirements established by the incident commander.

18.9.4 Public Information Officer.

18.9.4.1 The public information officer (PIO) shall be integrated within the incident management system as a command staff member.

18.9.4.2* The public information officer shall develop and release information about the incident to the news media, to incident personnel, and to other appropriate agencies and organizations.

18.9.4.3 Only one public information officer shall be assigned for each incident, including incidents operating under unified command and multi-jurisdiction incidents.

18.9.4.4 The public information officer shall be permitted to have assistants as necessary, and the assistants shall be permitted to also represent assisting agencies or jurisdictions.

18.9.4.5 The public information officer shall have the following major responsibilities at any incident:

(1) Determine from the incident commander if there are any limits on information release
(2) Develop material for use in media briefings
(3) Obtain incident commander's approval of media releases
(4) Inform media and conduct media briefings
(5) Arrange for tours and other interviews or briefings as requested
(6) Obtain media information that can be useful to incident planning
(7) Maintain current information summaries and/or displays on the incident and provide information on status of incident to assigned personnel
(8) Maintain unit log

18.9.5* Liaison Officer.

18.9.5.1 The liaison officer shall be integrated within the incident management system as a command staff member.

18.9.5.2 The incident commander shall be permitted to establish the position of liaison officer on the command staff when incidents are multi-jurisdictional or have several agencies involved.

18.9.5.3* The liaison officer shall be the contact for the personnel assigned to the incident by assisting or cooperating agencies.

18.9.5.4 The liaison officer shall have the following major responsibilities at any incident:

(1) Be a contact point for agency representatives
(2) Maintain a list of assisting and cooperating agencies and agency representatives
(3) Assist in establishing and coordinating interagency contacts
(4) Keep agencies supporting the incident aware of incident status
(5) Monitor incident operations to identify current or potential interorganizational problems
(6) Participate in planning meetings and provide current resource status, including limitations and capability of assisting agency resources
(7) Maintain unit log

18.9.6 Safety Officer.

18.9.6.1* The safety officer (SO) shall be integrated within the incident management system as a command staff member. *(See Annex N.)*

18.9.6.2* SOPs shall define criteria for the response or appointment of a safety officer.

18.9.6.3 If the safety officer is designated by the incident commander, the ESO shall establish criteria for appointment based upon 17.10.5.

18.9.6.4* Assistant safety officers shall be assigned when activities, incident size, incident complexity, or other needs warrant extra personnel to ensure the achievement of safety functions.

18.9.6.5* The safety officer and assistant safety officer(s) shall be specifically identifiable on the incident scene.

18.9.6.6* The ESO shall have a policy for the assignment of the safety officer to ensure that a separate safety officer (SO) responds automatically.

18.9.6.7* If a predesignated safety officer is not available, the incident commander shall appoint a safety officer that meets the requirements of 17.10.5.

18.9.6.8 An additional assistant safety officer(s) shall be appointed when the activities, size, or need of the incident warrants extra safety personnel.

18.9.6.9* The safety officer shall make recommendations to the incident commander for the need of technical specialists based on the incident type, technical requirements, or specific agency needs of the incident.

18.9.6.9.1* In cases where a designated safety officer does not meet the technician-level requirements of NFPA 1006, the incident commander shall appoint an assistant safety officer or a technical specialist who meets the technician-level requirements of NFPA 1006 to assist with safety officer functions.

18.9.6.9.2* In cases where a designated safety officer does not meet the technician-level requirements of NFPA 472. incorporated in the 2022 edition of NFPA 470, the incident commander shall appoint an assistant safety officer or a technical specialist who meets the technician-level requirements of NFPA 472 to assist with safety officer functions.

18.9.6.10 At an emergency incident, the incident commander shall be responsible for the overall management of the incident and the safety of all members involved at the scene.

18.9.6.11 At an emergency incident where activities are judged by the safety officer as posing an imminent threat to responder safety, the safety officer shall have the authority to stop, alter, or suspend those activities.

18.9.6.11.1 The safety officer shall immediately inform the incident commander of any actions taken to correct imminent hazards at the emergency scene.

18.9.6.11.2 At an emergency incident where a safety officer identifies unsafe conditions, operations, or hazards that do not present an imminent threat to responder, the safety officer shall take appropriate action through the incident commander to mitigate or eliminate the unsafe condition, operation, or hazard at the incident scene.

18.9.6.12 An assigned assistant safety officer(s) shall be granted the authority authorized in 18.9.6.11.

18.9.6.13* The safety officer and assistant safety officer(s) shall be readily identifiable at the incident scene.

18.9.6.14* Upon arrival or assignment as the safety officer at an incident, he or she shall obtain a situation-status briefing from the incident commander or designee that includes the verbal incident action plan.

18.9.7 Scene Safety.

18.9.7.1 The safety officer shall monitor conditions, activities, and operations to determine whether they fall within the criteria as defined in the fire department's risk management plan.

18.9.7.2 When the perceived risk(s) is not within the criteria of 18.9.7.1, the safety officer shall take action as outlined in 18.3.19.

18.9.7.3 The major responsibilities of the safety officer, which shall apply to any incident, are as follows:

(1) Participate in planning meetings
(2) Identify hazardous situations associated with the incident
(3) Review the IAP for safety implications
(4) Exercise emergency authority to stop and prevent unsafe acts
(5) Investigate accidents that have occurred within the incident area
(6) Assign assistants as needed
(7) Review and approve the medical plan
(8) Maintain unit log

18.9.7.4 The major responsibilities of a safety officer shall apply to any incident and include the following:

(1) Communicate to the IC changing incident conditions, activities, operations, hazards, and unacceptable risk-taking circumstances that warrant a change in the IAP

(2) Exercise emergency authority to stop, alter, or suspend activities that are determined to present an imminent threat to responder safety
(3) Establish emergency incident hazard control zones, including collapse zones, based on current and changing fire conditions, building construction/structural factors, hazardous energy integrity, and incident operational effectiveness
(4) Communicate emergency incident hazard control zones to the IC and responders in accordance with Section 10.7 of this standard
(5) Ensure that members operating in IDLH environments have adequate means of rapid egress
(6) Ensure that personnel safety systems have been established, including required PPE levels, a "Mayday" rapid intervention crew(s), and a personal accountability system that is in accordance with Section 21.5
(7) Monitor radio traffic to ensure effective communication
(8) Ensure that effective responder rehabilitation efforts have been established in accordance with NFPA 1584
(9) Communicate to the IC the need for assistant safety officers
(10) Develop preventive measures for IC consideration to further reduce responder exposure to hazards
(11) Ensure that contaminated personnel, tools, hose, equipment, and PPE are processed in accordance with contamination-reduction SOPs prior to being returned to service
(12) Begin investigation procedures for accidents that have occurred within the incident area
(13) Document safety officer actions, interventions, and post-incident follow-up needs

18.9.7.5* The safety officer shall ensure that the incident scene rehabilitation area has been established.

18.9.7.6 The safety officer shall ensure compliance with the department's infection control plan and NFPA 1581 during emergency medical service operations.

18.10* General Staff. An incident management system shall include the general staff sections of operations, planning, logistics, and finance/administration.

18.10.1 Operations Section.

18.10.1.1 Operations section functions shall include those tactical operations of the incident management system that are within the primary mission of the ESO.

18.10.1.2* The incident commander shall assign intermediate levels of supervision and organize resources following SOPs based on the scale and complexity of operations.

18.10.1.3* All supervisory personnel assigned to operations functions shall support an overall strategic plan, as directed by the incident commander, and shall work toward the accomplishment of tactical objectives.

18.10.1.4 Supervisory personnel assigned to operations functions shall be accountable for all resources assigned under their span of control and for coordination with higher levels of the command structure and with other supervisory personnel at the same level.

18.10.1.5 Supervisory personnel shall ensure that the safety and health of all responders is the primary consideration.

18.10.1.6 The following major responsibilities of the operations section chief shall apply to any incident:

(1) Manage tactical operations as follows:
   (a) Interact with next lower level of section (branch or division/group) to develop the operations portion of the IAP
   (b) Request resources needed to implement the operation's tactics as a part of the IAP
(2) Assist in development of the operations portion of the IAP
(3) Supervise the execution of the IAP for operations as follows:
   (a) Maintain close contact with subordinate positions
   (b) Ensure safe tactical operations
(4) Request additional resources to support tactical operations
(5) Approve release of resources from assigned status (not release from the incident)
(6) Make or approve expedient changes to the IAP during the operational period as necessary
(7) Maintain close communication with the incident commander
(8) Maintain unit log

18.10.1.7 The incident commander shall be permitted to assign single resources, task forces, or strike teams in tactical assignments without activation of either the section or branches.

18.10.1.8 Staging.

18.10.1.8.1* The incident management system shall provide a standard system to manage reserves of responders and other resources at or near the scene of the incident.

18.10.1.8.2* When emergency activities are being conducted in a location where there would be a delay in activating staged resources, the incident commander shall establish staging areas close to the area where the need for those resources is anticipated.

18.10.1.9 Staging Area Manager.

18.10.1.9.1 The staging area manager shall report to the operations section chief or to the incident commander if the operations section chief position has not been filled.

18.10.1.9.2 The following major responsibilities of the staging area manager shall apply to any incident:

(1) Establish layout of staging area
(2) Post areas for identification and traffic control
(3) Provide check-in for incoming resources
(4) Determine required resource reserve levels from the operations section chief or incident commander
(5) Advise the operations section chief or incident commander when reserve levels reach minimums
(6) Maintain and provide status to resource unit of all resources in staging area
(7) Respond to operations section chief or incident commander requests for resources
(8) Request logistical support for personnel and/or equipment as needed
(9) Maintain staging area in an orderly condition
(10) Demobilize or move staging area as required
(11) Maintain unit log

18.10.2 Planning Section.

18.10.2.1 Planning section staff functions shall include those components of the incident management system involved with information management that support the incident commander and other levels of the incident command structure.

18.10.2.2* The incident management system shall include a standard approach for the collection, evaluation, dissemination, and use of information.

18.10.2.3 The planning staff shall account for the organizational structure, availability of resources, deployment of resources, and situation status reports.

18.10.2.4 The incident management system shall include standard methods and terminology to record and track the assignment of resources for the duration of an incident.

18.10.2.5 The incident management system shall include a standard approach to utilize technical specialists to support the development of strategic plans and to assist the incident commander.

18.10.2.6 The five units that shall be permitted to be established within the planning section are as follows:

(1) Resources unit
(2) Situation unit
(3) Documentation unit
(4) Demobilization unit
(5) Intelligence/investigation unit

18.10.2.7* The incident commander shall be permitted to activate specific units within the planning section without activation of the entire section.

18.10.2.8 The following major responsibilities of the planning section shall apply to any incident:

(1) Collect and process situation information about the incident
(2) Supervise preparation of the IAP
(3) Provide input to the incident commander and operations section chief in preparing the IAP
(4) Reassign out-of-service personnel already on site to incident management system organizational positions as appropriate
(5) Establish information requirements and reporting schedules for planning section units (e.g., resources, situation units)
(6) Determine need for any specialized resources in support of the incident
(7) Establish special information collection activities as necessary (weather, environmental, toxins, etc.)
(8) Assemble information on alternative strategies
(9) Provide periodic predictions on incident potential
(10) Report any significant changes in incident status
(11) Compile and display incident status information
(12) Oversee preparation of incident demobilization plan
(13) Incorporate the incident traffic plan (from ground support) and other supporting plans into the IAP
(14) Maintain unit log

18.10.2.9 The planning "P" diagram or the All-Hazard Planning "P" diagram shall be used in developing an all-hazard incident action plan (IAP). *(See Annex M for further information on the all-hazard planning "P.")*

18.10.2.9.1* The incident management team shall use the Planning "P" when developing an incident action plan.

18.10.2.9.2 The incident management team shall use an AHJ approved common system to document all planning activities.

18.10.3 Logistics Section.

18.10.3.1 The logistics section shall provide services and support systems to all the organizational components involved in the incident including facilities, transportation, supplies, equipment maintenance, fueling, feeding, communications, and medical services/responder rehabilitation.

18.10.3.2* The six units that shall be permitted to be established within the logistics section are as follows:

(1) Supply unit
(2) Facilities unit
(3) Ground support unit
(4) Communications unit
(5) Food unit
(6) Medical services/responder rehabilitation unit

18.10.3.3* The incident commander shall be permitted to activate specific units within the logistics section without activation of the entire section.

18.10.3.4 The following major responsibilities of the logistics section shall apply to any incident:

(1) Manage all incident logistics
(2) Provide logistical input to the incident commander in preparing the IAP
(3) Brief branch directors and unit leaders as needed
(4) Identify anticipated and known incident service and support requirements
(5) Request additional resources as needed
(6) Review and provide input to the communications plan, medical plan, and traffic plan
(7) Supervise requests for additional resources
(8) Oversee demobilization of logistics section

18.10.3.5* When implementing logistics at an incident in a high-rise building, the following additional functional assignments shall be included:

(1) Base
(2) Lobby control
(3) Systems control
(4) Expanded ground (stairwell) support

18.10.4 Finance/Administration Section.

18.10.4.1* The incident management system shall provide finance/administrative services where necessary.

18.10.4.2 The incident commander shall assign finance/administrative functions on the basis of the needs or complexity of the incident.

18.10.4.3* The four units that shall be permitted to be established within the finance/administration section are as follows:

(1) Time unit
(2) Procurement unit
(3) Compensation/claims unit
(4) Cost unit

18.10.4.4 The incident commander shall be permitted to activate specific units within the finance/administration section without activation of the entire section.

18.10.4.5 The following major responsibilities of the finance/administration section shall apply to any incident:

(1) Manage all financial aspects of an incident
(2) Provide financial and cost analysis information as requested
(3) Gather pertinent information from briefings with responsible agencies
(4) Develop an operating plan for the finance/administration section.
(5) Fill supply and support needs
(6) Determine need to set up and operate an incident commissary
(7) Meet with representatives of assisting and cooperating agencies as needed
(8) Maintain daily contact with agency's administrative headquarters on finance/administration matters
(9) Ensure that all personnel time records are accurately completed and transmitted to home agencies, according to policy
(10) Provide financial input to demobilization planning
(11) Ensure that all obligation documents initiated at the incident are properly prepared and completed
(12) Brief the agency's administrative personnel on all incident-related financial issues needing attention or follow-up

Chapter 19 Communications and Information Management (NFPA 1561)

19.1* Communications Systems.

19.1.1 The communications system shall meet the requirements of the emergency services organization (ESO) for both routine and large-scale emergencies.

19.1.2 The communications system shall have the capacity to provide one dispatch radio channel and a separate tactical radio channel for initial use at the incident.

19.1.3 When a division or group has been implemented, the communications system shall have the capacity to provide a dispatch radio channel, a command radio channel, and a tactical radio channel.

19.1.4* The communications system shall provide reserve capacity for complex or multiple incidents.

19.1.5 The ESO shall provide for communications interoperability with mutual aid resources or other agencies that could be expected to respond to a major incident.

19.1.6 The ESO shall develop an information management system.

19.2 Protocols and Terminology.

19.2.1 The incident management system shall include SOPs for radio communications that provide for the use of standard protocols and terminology at all types of incidents.

19.2.2* Clear text/plain language shall be used for radio communications.

19.2.3* Standard terminology shall be established to transmit information, including strategic modes of operation, situation reports, and emergency notifications of imminent hazards.

19.3 Emergency Traffic.

19.3.1* To enable responders to be notified of an emergency condition or situation when they are assigned to an area designated as immediately dangerous to life or health (IDLH), at least one responder on each crew or company shall be equipped with a portable radio and each responder on the crew or company shall be equipped with either a portable radio or another means of electronic communication.

19.3.2* The communications system shall provide a standard method to give priority to the transmission of emergency messages and notification of imminent hazards over that of routine communications to all levels of the incident command structure.

19.3.2.1* The term "Mayday, Mayday, Mayday" shall be used to alert responders that a member(s) need immediate help.

19.3.2.2 When a "Mayday" condition is announced on the radio for an immediate condition for a responder, the IC shall make sure the "Mayday" is broadcast utilizing the distinctive emergency traffic alert tones and a plan is implemented to facilitate the immediate action to address the situation.

19.3.3* To ensure that clear text/plain language is used for an emergency condition at an incident, the ESO shall have an SOP that uses the radio term *emergency traffic* as a designation to clear radio traffic.

19.3.4* "Emergency Traffic" or "Mayday" shall be declared by an incident commander, branch director, division/group supervisor, or any member that needs to address an emergency condition, or is aware of an emergency situation that hasn't been broadcast on the radio channel.

19.3.5* When a responder has declared an "Emergency Traffic" message or a "Mayday" situation, that person shall use clear text/plain language to identify the type of emergency, change in conditions, or change in tactical operations.

19.3.6 When the emergency has been abated or all affected members have been made aware of the hazardous condition or emergency, the incident commander shall permit radio traffic to resume.

19.4 Telecommunicator Support.

19.4.1 The incident management system shall provide SOPs for a telecommunicator to provide support to emergency incident operations.

19.4.2 Telecommunicators shall be trained to function effectively within the incident management system and shall meet the qualifications required by NFPA 1225.

19.4.3* The incident commander shall be provided with reports of elapsed time-on-scene at emergency incidents in 15-minute intervals from the ESO communications center, until reports are terminated by the incident commander.

Chapter 20 Incident Management Team(s) (NFPA 1561)

20.1 Positions.

20.1.1* An incident management team shall be capable of filling the command and general staff positions.

20.1.2 The authority having jurisdiction (AHJ) shall develop qualifications of each position based on the roles and responsibilities identified in this document.

20.2 Training.

20.2.1* The local agency shall provide training for the responders who fill the incident management team positions.

20.2.2 Training curricula and programs shall comply with NIMS ICS position-specific training curricula.

20.2.3 Team members shall be trained together with full-scale exercises and simulations of sufficient number to develop their proficiency and allow them to maintain the necessary skills.

20.2.4 The AHJ shall require training and planning with adjacent jurisdictions and agencies to jointly develop incident management teams to manage the overall incident.

20.3 Staffing.

20.3.1* Staffing of an incident management team shall provide sufficient responders to provide relief for continuous operation covering multi-operational periods.

20.3.2* The local agency shall develop SOPs for on-call roster (to fill each position on the incident management team), notification and response capability of each member, and a cache of incident command post supplies.

Chapter 21 Command Safety (NFPA 1561)

21.1 Supervisory Levels. The incident management system shall provide a series of supervisory levels to be implemented to create a command structure.

21.2* Span of Control. The command structure for each incident shall maintain an effective supervisory span of control at each level of the organization.

21.3 Overall Command. The incident management system shall clearly identify who is in overall command at the scene for the duration of the incident.

21.3.1* There shall be one clearly identifiable incident commander for the duration of the incident, from the arrival of the first ESO unit until the incident is terminated.

21.4 Command Post Establishment. Following the initial stages of an incident, the incident commander shall establish a stationary command post.

21.5* Accountability Systems. The incident commander shall initiate an accountability system that includes functional and geographical assignments at the beginning of operations and that system shall be maintained throughout operations.

21.6 Assignment of Staff Aides. The incident commander and members who are assigned a supervisory responsibility that involves three or more companies or crews under their command shall have an additional person (staff aide) assigned to facilitate the tracking and accountability of the assigned companies or crews.

21.7 Additional Resources. The incident commander shall request additional resources as needed.

21.8 Rapid Intervention Crew/Company Assignment. The IC shall designate and assign a rapid intervention crew/company (RIC) to initiate the immediate rescue of injured, lost, or trapped responders.

21.9 Responsibilities of the Incident Commander.

21.9.1 The first arriving responder from an ESO that has responsibility for the incident shall assume the role of incident commander for the incident.

21.9.1.1 The incident commander shall conduct an initial and ongoing situational assessment of the incident.

21.9.1.2 The incident commander shall establish an effective communications plan.

21.9.1.3 The incident commander shall develop the incident objectives from the situational assessment and form applicable strategy and tactics.

21.9.1.4 The incident commander shall deploy available resources and request additional resources based upon the needs of the incident.

21.9.1.5 The incident commander shall develop an incident organization for the management of the incident.

21.9.1.6 The incident commander shall review, evaluate, and revise the strategy and tactics based upon the needs of the incident.

21.9.1.7 The incident commander shall provide for the continuity, transfer, or termination of command.

21.10* Community Risk and Emergency Operation Plans. The ESO shall identify community risks and develop specific emergency operation plans that address both routine and unusual incidents and shall provide standardized procedures and supervisory assignments that can be applied to the needs of situations of differing types, sizes, and complexities.

21.11* Command Post Requirements. Following the initial stages of an incident, in establishing a command post, the incident commander shall ensure the following:

(1) The command post is located in or tied to a vehicle to establish presence and visibility.
(2) The command post includes radio capability to monitor and communicate with assigned tactical, command, and designated emergency traffic channels for that incident.
(3) The location of the command post is communicated to the communications center.
(4) The incident commander, or his or her designee, is present at the command post.
(5) The command post is located in the cold zone of an incident.

21.12 Command Post.

21.12.1 The incident commander shall maintain an awareness of the location and function of all companies or units at the scene of the incident.

21.12.2 The incident commander shall be responsible for overall responder accountability for the incident.

21.12.3 The incident commander shall initiate an accountability system that includes functional and geographical assignments at the beginning of operations and that system shall be maintained throughout operations.

21.12.4 The incident commander and members who are assigned a supervisory responsibility that involves three or more companies or crews under their command shall have an additional member(s) (staff aide) assigned to facilitate the tracking and accountability of the assigned companies or crews.

21.12.5 The incident commander shall keep the safety officer informed of strategic and tactical plans and any changing conditions.

21.12.6* The incident commander shall evaluate the risk to responders with respect to the purpose and potential results of the responders' actions.

21.12.7 In situations where the risk to emergency service responders is excessive, as defined in 21.12.8, activities shall be limited to defensive operations.

21.12.8* The following risk management principles shall be utilized by the incident commander:

(1) Activities that present a significant risk to the safety of responders shall be limited to situations that have the potential to save endangered lives.
(2) Activities that are routinely employed to protect property shall be recognized as inherent risks to the safety of responders, and actions shall be taken to reduce or avoid these risks.
(3) No risk to the safety of responders shall be acceptable where there is no possibility to save lives or property.

21.13 Safety Officer and Assistant Safety Officer.

21.13.1* The incident commander (IC) shall appoint a safety officer (SO) at all applicable emergency incidents.

21.13.2 The following items shall be considered regarding the appointment of a safety officer:

(1) The safety officer must be assigned as early in the incident as possible.
(2) The safety officer reports directly to the IC.
(3) The safety officer recons the incident to identify existing or potential hazards and informs the incident commander.
(4) The safety officer recommends to the IC any changes to the incident action plan as a result of the ongoing surveys.
(5) At an emergency incident where the safety officer judges activities unsafe or an imminent hazard, the safety officer shall have the authority to alter, suspend, or terminate those activities. The safety officer needs to immediately inform the incident commander of any actions taken to correct imminent hazards at the emergency scene.
(6) At an emergency incident where a safety officer identifies unsafe conditions, operations, or hazards that do not present an imminent danger, the safety officer should take appropriate action through the incident commander to mitigate or eliminate the unsafe condition, operations, or hazard at the incident scene.
(7) When operating in forward or otherwise hazardous positions, the safety officer must be attired in appropriate personal protective equipment (PPE), including self-contained breathing apparatus (SCBA), have radio communication equipment, and be accompanied by another responder.

21.13.3 Appointed safety officers shall meet the requirements set forth in Chapter 5.

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.1.3 Beginning with the publication of NFPA 1550, new editions of NFPA 1500, NFPA 1521, and NFPA 1561 will not be published as separate, standalone standards. Where an authority having jurisdiction wants to reference the latest edition of one or more of the previous standards, the referencing language should refer to NFPA 1550 or the specific chapters of NFPA 1550, as identified in Section 1.3. The numbers found in parentheses at the end of each chapter title refer to the former standalone documents and are intended to help users navigate between this standard and the former standalone documents.

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

A.3.3.7 Air Transfer. Air is allowed to flow from the cylinder with a higher pressure to the cylinder with a lower pressure until the pressure equalizes, at which time the transfer line is disconnected between the two cylinders.

A.3.3.8 Aircraft Rescue and Firefighting. Such rescue and firefighting actions are performed both inside and outside of the aircraft.

A.3.3.9 Area Command. Area command has the responsibility to set overall strategy and priorities, allocate critical resources according to priorities, ensure that incidents are properly managed, and ensure that objectives are met and strategies followed. Area command becomes unified area command when incidents are multi-jurisdictional.

A.3.3.10 Assistant. The command staff positions of safety officer, public information officer, and liaison officer can be assigned an assistant or as many assistants as necessary to complete the assigned tasks.

A.3.3.11.1 Hazardous Atmosphere. A hazardous atmosphere can be immediately dangerous to life and health.

A.3.3.12 Base. The incident command post might share the same location as the base. There is only one base per incident, and the incident name or other designator should be added to the term "Base" as its title.

A.3.3.17 Candidate. In an employment context, the Americans with Disabilities Act (discussed in further detail in Annex B of NFPA 1582) requires that any medical examination to be conducted take place after an offer of employment is made and prior to the commencement of duties. Therefore, in the employment context, the definition of *candidate* should be applied so as to be consistent with that requirement. Volunteer firefighters have been deemed to be "employees" in some states or jurisdictions. Volunteer fire departments should seek legal counsel as to their legal responsibilities in these matters.

A.3.3.19 Chemical Flash Fire. A policy of wearing protective clothing is needed that recognizes the significant threat to firefighters who can be exposed to flash fires in either structural firefighting or hazardous materials environments. It is hoped that firefighters utilize awareness training on burn injuries caused by the ignition of the environment. There is a distinct difference between chemical flash fires and flashovers occurring in structural firefighting environments.

Flashover is a phenomenon that generates temperatures in the range of 1200°F to 1500°F (650°C to 815°C). A chemical flash fire requires an ignition source and a chemical atmosphere that contains a concentration above the lower explosive limit (LEL) of the chemical. Chemical flash fires generate heat from 1000°F to 1900°F (540°C to 1040°C). As a rule, a structural fire flashover is confined to a designated area with walls as a boundary. The size of a chemical flash fire depends on the size of the gas or vapor cloud and, when ignited, the flame front expands outward in the form of a fireball. The resulting effect of the fireball's energy with respect to radiant heat significantly enlarges the hazard areas around the gas released. [**1990,** 2022]

A.3.3.21 Clear Text/Plain Language. Ten codes or agency-specific codes should not be used when using clear text/plain language.

A.3.3.27 Command Staff. Command staff positions can have an assistant or assistants.

A.3.3.30 Company. For fire suppression, jurisdictions exist where the response capability of the initial arriving company is configured with the response of two apparatus. In some jurisdictions, apparatus is not configured with seated and belted positions for four personnel and therefore would respond with an additional vehicle in consort with the initial arriving engine to carry additional personnel. This response would be to ensure that a minimum of four personnel are assigned to and deployed as a company. The intent of this definition and the requirements in the standard is to ensure that these two (or more) pieces of apparatus would always be dispatched and respond together as a single company. Some examples of this include the following:

(1) Engine and tanker/tender that would be responding outside a municipal water district

(2) Multiple-piece company assignment, specified in a fire department's response standard operating procedures, such as an engine company response with a pumper and a hose wagon
(3) Engine with a vehicle personnel carrier
(4) Engine with an ambulance or rescue unit

Company, as used in this standard, is synonymous with company unit, response team, crew, and response group, rather than a synonym for a fire department.

A.3.3.31 Confined Space. Additionally, a confined space is further defined as having one or more of the following characteristics:

(1) The area contains or has a potential to contain a hazardous atmosphere, including an oxygen-deficient atmosphere.
(2) The area contains a material with a potential to engulf a member.
(3) The area has an internal configuration such that a member could be trapped by inwardly converging walls or a floor that slopes downward and tapers to a small cross section.
(4) The area contains any other recognized serious hazard.

A.3.3.32 Contaminants. These can be airborne, dermal, ocular, or respiratory hazards consisting of products of combustion, carcinogens, toxic chemicals, ultrafine particles, corrosive or sensitizing allergy-causing chemicals, potentially infectious body fluids, other infectious microorganisms, or CBRN terrorism agents and other incident health hazards.

A.3.3.38 Crew Resource Management (CRM). The National Transportation Safety Board implemented a Cockpit Resource Management program in early 1980. This program was a direct result of the unfortunate crash of United Airlines Flight #173 just outside of Portland, Oregon. This crash claimed the lives of 10 people, including the flight crew's second officer. Over the years, the program was recognized as being so effective that it was rewritten as Crew Resource Management (CRM) program to include everyone that has a part in flight operations, from baggage handlers to fuelers to gate agents to pilots.

A.3.3.39 Cryogenic Liquid. Cryogenic liquids include, but are not limited to, helium, nitrogen, and oxygen. [**1990,** 2022]

A.3.3.43 Department Operations Center (DOC). A department operations center could facilitate mutual aid requests, assistance for hire requests, and other agency issues such as recall of personnel and staffing of resources.

A.3.3.44 Deputy. In some cases, a deputy could act as relief for a superior and therefore must be fully qualified for the position. Deputies can be assigned to the incident commander, general staff, and branch directors.

A.3.3.45.1 Communicable Disease. Also known as contagious disease.

A.3.3.55 Emergency Operations Center (EOC). An EOC can be a temporary facility or be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs can be organized by major functional disciplines (e.g., fire, law enforcement, and medical services), by jurisdiction (e.g., federal, state, regional, tribal, city, county), or some combination thereof.

A.3.3.56 Emergency Services Organization (ESO). These organizations can include law enforcement; emergency medical services; fire departments; American Red Cross; Salvation Army; public works; federal, state, or local government agencies; private contractors; environmental agencies; fire brigades; and other organizations.

A.3.3.58 Faceshield. Faceshields should be used only in conjunction with spectacles and/or goggles.

A.3.3.63 Fire Department. The term *fire department* can include any public, governmental, private, industrial, or military organization engaging in this type of activity.

A.3.3.64 Fire Department Facility. This does not include locations where a fire department can be summoned to perform emergency operations or other duties, unless such premises are normally under the control of the fire department.

A.3.3.69.1 Proximity Firefighting. Specialized thermal protection from exposure to high levels of radiant heat, as well as thermal protection from conductive and convective heat, is necessary for persons involved in such operations due to the scope of these operations and the close distance to the fire at which these operations are conducted, although direct entry into flame is *not* made. These operations usually are exterior operations but could be combined with interior operations. Proximity firefighting is not structural firefighting but could be combined with structural firefighting operations.

A.3.3.71 Fire Suppression. Fire suppression includes all activities performed at the scene of a fire incident or training exercise that expose fire department members to the dangers of heat, flame, smoke, and other products of combustion, explosion, or structural collapse.

A.3.3.72 Flame Resistance (Protective Apparel). Flame resistance can be an inherent property of the textile material, or it can be imparted by specific treatment.

A.3.3.76 Gross Decontamination. Victims of a hazardous material release that is potentially life threatening due to continued exposure from contamination are initially put through a gross decontamination, which will significantly reduce the amount of additional exposure. This is usually accomplished by mechanical removal of the contaminant or initial rinsing from handheld hose lines, emergency showers, or other nearby sources of water. Responders operating in a contaminated zone in personal protective equipment (PPE) are put through gross decontamination, which will make it safer for them to remove the PPE without exposure and for members assisting them.

A.3.3.79 Hazard. Hazards include the characteristics of facilities, equipment, systems, property, hardware, or other objects and the actions and inactions of people that create such hazards.

A.3.3.87 Health and Safety Officer. This individual can be the incident safety officer (ISO), or that can also be a separate function.

A.3.3.90 High-Rise Building. It is the intent of this definition that, in determining the level from which the highest occupiable floor is to be measured, the enforcing agency should exercise reasonable judgment, including consideration of overall accessibility to the building by fire department personnel and vehicular equipment. Where a building is situated on a sloping terrain and there is building access on more than one level, the

enforcing agency might select the level that provides the most logical and adequate fire department access. [**5000**, 2024]

A.3.3.92 HSPD-5. HSPD-5 requires all federal departments and agencies to adopt the NIMS and to use it in their individual incident management and emergency programs and activities, as well as in support of all actions taken to assist state, tribal, or local entities. The directive requires the federal departments and agencies to make adoption of the NIMS by state and local organizations a condition for federal preparedness assistance (through grants, contracts, and other activities).

A.3.3.96 Incident Action Plan. An incident action plan can be a verbal plan, tactical worksheet, written plan, or combinations thereof, that reflects the overall incident strategy, tactics, risk management, and member safety that are developed by the incident commander.

A.3.3.98 Incident Commander (IC). The IC has overall authority and responsibility for conducting incident operations and for managing all incident operations at the incident site.

A.3.3.99 Incident Management System (IMS). The system is also referred to as an incident command system (ICS).

The implementation of HSPD-5 led to the development of the National Incident Management System (NIMS). The NIMS is a system mandated by HSPD-5 that provides a consistent nationwide approach for federal, state, local, and tribal governments; the private sector; and nongovernmental organizations to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among federal, state, local, and tribal capabilities, the NIMS includes a core set of concepts, principles, and terminology. HSPD-5 identifies these as the ICS; multi-agency coordination systems; training; identification and management of resources (including systems for classifying types of resources); qualification and certification; and the collection, tracking, and reporting of incident information and incident resources.

In addition to the NIMS, the process also incorporates the National Response Plan. The National Response Plan is defined as a plan mandated by HSPD-5 that integrates federal domestic prevention, preparedness, response, and recovery plans into one all-discipline, all-hazards plan.

A.3.3.100 Incident Management Team (IMT). Incident management teams are generally classified as one of five types — Type I are national teams; Type II are state or national teams; Type III are regional or state, multi-agency or multi-jurisdictional teams; Type IV are local agency- or jurisdiction-specific teams; and Type V are local discipline-specific teams.

An IMT is made up of the command and general staff members in an ICS organization. Persons to fill these positions for various types of incidents or events are often predesignated to ensure that they have the necessary training and experience to fulfill the roles and responsibilities of the ICS position. The level of training and experience of the IMT members, coupled with the identified formal response requirements and responsibilities of the IMT, are factors in determining the Type of the IMT.

A deployable IMT can be requested by the AHJ for events that exceed local capabilities or for other reasons. Such a team is structured to provide incident management assistance to complement and support the existing incident management system (IMS) organization. The emergency services organization can request the IMT to either perform incident support or incident management of the overall emergency.

A.3.3.103 Incident Scene. This location should include the entire area subject to incident-related hazards and all areas used by emergency services organization responders and equipment in proximity to the incident scene.

A.3.3.105 Infection Control Program. This program includes, but is not limited to, implementation of written policies and standard operating procedures regarding exposure follow-up measures, immunizations, members' health screening programs, and educational programs.

A.3.3.112 Liquefied Gas. Examples of liquefied gases include, but are not limited to, ammonia, 1,2-butadiene, chlorine, ethylene oxide, hydrogen chloride, liquefied petroleum gas, and methyl chloride. Testing in NFPA 1990 is only conducted for a limited number of liquefied gases. Users should consult the technical data package to determine which liquefied gases have been tested with the suit's primary materials. [**1990,** 2022]

A.3.3.113 Member. A fire department member can be a full-time or part-time employee, can be a paid or unpaid volunteer, can occupy any position or rank within the fire department, and might or might not engage in emergency operations.

A.3.3.117 Multi-Agency Coordination Systems (MACS). These systems assist agencies and organizations to fully integrate the subsystems of the NIMS. The components of multi-agency coordination systems include facilities, equipment, emergency operation centers (EOCs), specific multi-agency coordination entities, personnel, procedures, and communications.

A.3.3.118 National Incident Management System (NIMS). To provide for interoperability and compatibility among federal, state, local, and tribal governments, the NIMS includes a core set of concepts, principles, and terminology. HSPD-5 identifies these as the ICS; multi-agency coordination systems; training; identification and management of resources (including systems for classifying types of resources); qualification and certification; and the collection, tracking, and reporting of incident information and incident resources.

A.3.3.119 National Response Framework. The National Response Framework (NRF) defines the key principles, roles, and structures that organize the way the nation responds. It describes how communities, tribes, states, the federal government, and private-sector and nongovernmental partners apply the principles for a coordinated, effective national response. It identifies special circumstances where the federal government exercises a larger role, including incidents where federal interests are involved and catastrophic incidents where a state would require significant support. The NRF enables first responders, decision makers, and supporting entities to provide a unified national response. This FEMA document establishes a comprehensive, national, all-hazards approach to domestic incident response.

A.3.3.123 Occupational Safety and Health Program. This program is also referred to as the Occupational Safety and Health Management System.

A.3.3.126.1 Defensive Operations. Defensive operations are generally performed from the exterior of structures and are based on a determination that the risk to personnel exceeds the potential benefits of offensive actions.

A.3.3.126.5 Special Operations. Special operations include water rescue, extrication, hazardous materials, confined space entry, high-angle rescue, aircraft rescue and firefighting, and other operations requiring specialized training.

A.3.3.128 Particulates. Particulates do not include aerosols or suspended liquid droplets in air. Aerosols are considered liquids.

A.3.3.132 Planned Event. Examples of a planned event are parades, sporting events, air shows, conventions, and controversial court decisions.

A.3.3.133 Power-Assisted Patient Cot. This system might or might not require two attendants to operate but uses the powered assistance to reduce the strain and workload placed on attendees when raising and lowering the cot and when loading and unloading the cot from an ambulance.

A.3.3.136 Protective Ensemble. The elements of the protective ensemble are coats, trousers, coveralls, helmets, gloves, footwear, and interface components.

A.3.3.138 Public Information Officer. The public information officer can be assigned assistant(s).

A.3.3.140 Radio Channels. For many emergency services organizations (ESOs), the dispatch, command, and tactical channels may only be one or two channels. In some localities, several communities might share several frequencies for public safety operations while in other locations, a small city or town might share radio channels within its governmental agencies (e.g., police, fire, EMS, and public works).

Radio frequency usually refers to the radio frequency of the assigned channel. A radio channel is defined as the width of the channel depending on the type of transmissions and the tolerance for the frequency of emission. A radio channel is normally allocated for radio transmission in a specified type of service or by a specified transmitter.

The ESO needs to ensure that necessary radio channels are available when necessary at complex incidents such as a commercial structure fire, mass-casualty incident, hazardous materials incident, or special operations incident. This might require that the radio system allow the use of available channels to ensure proper communications during large-scale or complex incidents.

The ESO must preplan for not only large-scale or complex incidents, but also for the ability to handle daily operations. Standard operating procedures, radio equipment and other hardware, and dispatch and communications protocols must be in place to ensure that these additional channels are available when needed.

A.3.3.140.3 Tactical Radio Channel. It is also used at the tactical level management unit when implemented.

A.3.3.141 Rapid Intervention Crew/Company (RIC). Emergency services personnel respond to many incidents that present a high risk to personnel safety. Departments in compliance with OSHA 29 CFR 1910.134, "Respiratory protection," must have a minimum of two persons on scene fully equipped when members are operating in an atmosphere immediately dangerous to life or health (IDLH) or a potentially IDLH atmosphere. The primary purpose is the rescue of injured, lost, or trapped firefighters. Departments utilizing an incident management system in accordance with Chapters 17 through 21 of this standard or 29 CFR 1910.120, "Hazardous waste operations and emergency response," along with a personnel accountability system, have incorporated the RIC into their management system. Many departments have redefined their response plans to include the dispatch of an additional company (engine, rescue, or truck) to respond to incidents and stand by as the RIC. Incident commanders can assign additional RICs based on the size and complexity of the incident scene. In some departments, an RIC can also be known as a rapid intervention team. At wildland incidents this would be addressed through the planning process and contingency planning.

In some organizations they can also be known as a rapid intervention team. At wildland incidents, this crew designation would be addressed through the planning process and contingency planning. Emergency services organizations respond to many incidents that present a high risk to the safety of their responders. Organizations operating in compliance with 29 CFR 1910.134, "Respiratory Protection," need to have a minimum of two persons on scene, fully equipped outside any potentially immediately dangerous to life and health (IDLH) atmosphere when other responders are operating in an IDLH or potentially IDLH atmosphere. Initially, these responders outside the potentially IDLH atmosphere could have other assignments as long as those assignments do not detract from their being immediately available to perform their assignment as a member of the RIC. As the incident escalates, the rapid intervention crew/company should become a rapid intervention group. The primary purpose of the RIC is the rescue of injured, lost, or trapped emergency responders. Organizations utilizing an incident management system in accordance with Chapters 17 through 21 of this standard or 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response," along with a personnel accountability system, have incorporated the RIC into their management system. Many organizations have redefined their response plans to include the dispatch of an additional resource (e.g., a fire department engine company, rescue company, or truck company) to respond to incidents and stand by as the rapid intervention crew/company. Incident commanders can assign additional RICs based on the size and complexity of the incident scene. This requirement is also included in Chapter 10.

A.3.3.143 Rehabilitation. Rehabilitation efforts should include providing relief from extreme climate and/or incident conditions, rest and recovery, rehydration, replacement of calories and electrolytes, active cooling (or warming if necessary), medical monitoring, and member accountability.

A.3.3.150 Respiratory Protection Equipment (RPE). Examples are filter respirators, chemical cartridge or canister respirators, air-line respirators, powered air-purifying respirators, and self-contained breathing apparatus.

A.3.3.154 Risk Management. The risk management process includes the identification and analysis of exposure to hazards, evaluation and prioritization of those hazards, selection of appropriate risk management techniques to mitigate exposure to those hazards, implementation of selected control measures, and monitoring of results.

Risk management is a vital component to any organization's operation, especially a fire department. Health and safety programs are elements of a health and safety management system that directs the risk management process. The risk management process enables an organization to control or

reduce the frequency and severity of the risks associated with fire department emergency and nonemergency operations.

A.3.3.156 Safety Officer (SO). The safety officer can have assistants. There are agencies that identify the safety officer as an incident safety officer according to Chapters 4 and 5.

For the purposes of this document, a safety officer is a member of the command staff responsible for monitoring and assessing safety hazards or unsafe situations and for developing measures for ensuring personnel safety.

A.3.3.156.1 Health and Safety Officer (HSO). The health and safety officer (HSO) position can be staffed by an individual who is appointed by the fire chief and meets the qualifications of this position as determined by 4 and 5. For 4 and 5, the term *officer* does not reference rank. Examples of an officer include a fire department member, certified safety professional (CSP), an industrial hygienist, or an occupational safety and health specialist. It is important that the individual has the requisite knowledge and requisite skills to function effectively in this position. If qualified, this individual can also be the incident safety officer (ISO), or that role can be assigned to another individual as a separate function. *(See Chapter 5.)*

A.3.3.156.2 Incident Safety Officer (ISO). The incident safety officer can have "assistants."

A.3.3.159 Section. The section is organizationally situated between the branch and the incident command.

A.3.3.162 Special Operations. Special operations include responses to water rescue, hazardous materials releases, situations involving confined space entry, high-angle rescue, terrorism [chemical, biological, radiological, nuclear, and explosive (CBRNE)] and other operations requiring specialized training.

Special operations include incidents requiring specialized training such as response to structural collapse, confined space, trench, vehicle/machinery, high-angle, water, or wilderness rescue; hazardous materials situations involving chemicals, biological, radiological, nuclear, or explosive materials; and acts of terrorism.

A.3.3.163 Spectacles. Safety glasses are an example of spectacles.

A.3.3.164 Staff Aide. A staff aide is also known as a staff assistant, field incident technician, or emergency incident technician, who can be a responder or responder officer.

A.3.3.167 Standard Operating Procedure (SOP). The intent of standard operating procedures is to establish directives that must be followed. Standard operating guidelines allow flexibility in application.

A.3.3.172.1 Branch. A branch is organizationally situated between the section and the division or group in the operations section, and between the section and units in the logistics section. Branches are identified by the use of Roman numerals or by functional area.

A.3.3.172.2 Division. Divisions are established when the number of resources exceeds the manageable span of control of the operations chief. A division is located within the ICS organization between the branch and resources in the operations section.

Based upon current federal guidelines, agencies currently using the term *sector* are encouraged to change terminology to become NIMS compliant for their incident and daily operations by using the terms *division* for reference to organizational components based on geographic area and *group* for organizational components based on function.

A.3.3.172.3 Group. Groups are composed of resources assembled to perform a special function not necessarily within a single geographic division. Groups, when activated, are located between branches and resources in the operations section. *(See 3.3.172.2, Division.)*

Based upon current federal guidelines, agencies currently using the term *sector* are encouraged to change terminology to become NIMS compliant for their incident and daily operations by using the terms *division* for reference to organizational components based on geographic area and *group* for organizational components based on function.

A.3.3.178 Technical Specialist. Technical specialists could be needed in areas of fire behavior, special operations (i.e., hazardous materials, technical search and rescue), water resources, environmental concerns, building construction, Urban Search and Rescue (USAR), resource use, training, geographic information systems, and damage inspections.

A.3.3.180 Unified Command. Agencies work together through the designated members of the unified command, often the senior person from agencies and/or disciplines participating in the unified command, to establish a common set of objectives and strategies and a single incident action plan. This is accomplished without losing or abdicating agency authority, responsibility, or accountability.

A.3.3.187 Zone. An example of a zone would be area command. A zone could be assigned an incident management team(s) or an IC to provide management of a defined area or function. Zones can be identified geographically, numerically, or by function name.

A.4.1.2 The committee believes that Chapters 4 and 5 of this document specify the minimum JPRs for HSO and ISO for a fire department. The committee recognizes that emergency services organizations might have to invest considerable resources to provide the equipment and training needed to perform safely and efficiently. The committee does not mean to imply that organizations with limited resources cannot provide response services, only that the individuals charged with responsibilities are qualified to specific levels according to Chapters 4 and 5.

A.4.1.2.3 Organization/management responsibilities should be addressed by the agency that personnel represent. The AHJ should define the agency requirements for progression to positions of management responsibility.

A.4.1.2.6 The committee recognizes the importance of formal continuing education and training programs to ensure HSOs and ISOs have maintained and updated the necessary skills and knowledge for the level of qualification. Continuing education and training programs can be developed or administered by local, state, or federal agencies as well as professional associations and accredited institutions of higher education. The methods of learning would include areas of technology, refresher training, skills practices, and knowledge application to standards. The subject matter should directly relate to the requirements of Chapters 4 and 5.

The authority having jurisdiction might consider establishing a path by which members can demonstrate continued JPR compliance and competency through continuing education or practice within the field consistent with current duties. It is recommended that the following factors for any such program be considered:

(1) Demonstrated and documented knowledge and competence of additions and/or revisions to the latest edition of the standards
(2) Documented training and education (including online) related to the standards since the last certification
(3) Documented experience in the field (i.e., emergency operational experience for firefighters, fire officers, ISOs, instructors, etc.)
(4) Demonstrated and documented successful performance of duties, which could include skills assessment
(5) Annual performance appraisals
(6) Documented teaching and instruction related to the field
(7) Commendations, awards, and/or recognition for the performance of related duties

Other items for consideration might include the following:

(1) Memberships in professional organizations, including any positions held or special activities involved in the organization membership
(2) Published articles in trade journals, web-based publications, and other information distribution avenues
(3) Research and development activities related to the field
(4) Documented attendance at relevant conferences and training events

The above list is not all-inclusive and other factors specific to the field should be considered for inclusion.

A.4.1.3.5 It is recommended, where practicable, that evaluators be individuals who were not directly involved as instructors for the requirement being evaluated.

A.4.1.3.10(3) While it is possible that the HSO might not have to meet the medical requirements of NFPA 1582, it is understood that the ISO, who should have met the Level I requirements of NFPA 1021, would have also had to meet NFPA 1010 requirements to meet those of NFPA 1021. Thus, the ISO would have had to meet the medical requirements of NFPA 1010.

A.4.2.2 In cases where a member sustains a serious or fatal injury, the HSO could be viewed as a witness as opposed to an investigator. In such cases, the designated HSO should notify the AHJ to fulfill the investigative requirements of the department.

A.4.3 The HSO should be able to develop strategies for controlling risks by risk identification through local experience, trends, safety audits, and injury data. The HSO should then be able to evaluate the frequency and severities of the risks identified and implement control measures in three broad categories: risk avoidance, risk reduction, or risk transfer. Finally, the HSO should have the ability to monitor risk management programs.

Integrating risk management into training programs through the development of a comprehensive set of SOP/Gs, training notes, or other administrative elements that provide direction (or administrative controls) to manage those risks is an essential responsibility of the HSO.

Developing safety procedures and policies that are necessary to meet some of the goals and objectives defined in the safety program is another responsibility of the HSO. After development, approval, and implementation, the safety and health procedures and policies should be reviewed for effectiveness and updated as necessary as outlined in Angle, *Occupational Safety and Health in the Emergency Services.*

United States Fire Administration publication *Developing Effective Standard Operating Procedures for Fire and EMS Departments* is an excellent resource for the development of SOP/Gs.

A.4.3.1 The HSO should be able to develop, implement, and manage a risk management plan in an organization's operation, especially a fire department, and should be able to direct the risk management process to enable an organization to control or reduce the frequency and severity of the risks associated with fire department emergency and nonemergency operations.

A.4.3.2 According to Angle, *Occupational Safety and Health in the Emergency Services,* the HSO should meet the following criteria:

(1) Have the knowledge and ability to determine the effectiveness of the risk management plan by reviewing injury and exposure statistics, participating in post-incident analyses (PIAs), and developing SOP/Gs with training
(2) Have the ability to examine current injury rates and severities and compare them to the rates prior to program implementation using the goals and objectives developed as benchmarks
(3) Have the ability to measure the change in knowledge, behavior, and performance of personnel
(4) Have the ability to analyze changes in the physical environment and measure the response of personnel to policy changes

This information is necessary for HSOs to monitor and revise the risk management plan. Two methods of evaluation should be used: process evaluation and outcome evaluation.

A.4.3.3 The HSO should have the ability to integrate the department's SOP/Gs, training notes, program directives, and polices into the activities of the command and general staff, including accountability, entry control, use of rapid intervention teams (RICs), department procedures, apparatus placement, ventilation criteria, and rehabilitation.

The HSO should understand different kinds of operations, including single-jurisdiction/single-agency response, single-jurisdiction/multiagency response, and multijurisdictional/multiagency response; be able to implement an IMS at any emergency, and be able to use common terminology and integrated communications. The HSO should be able to include all aspects of an IMS, especially the concept of a manageable span of control in the risk management plan.

A.4.3.4 An operational risk management plan should assist the IC and fire department members in making sound, knowledgeable decisions when declaring the risk mode (going offensive or defensive) and developing specific strategies and accompanying tactics to reach operational objectives, assign human and equipment resources, and note specific safety considerations to mitigate the incident.

A.4.4.2 A significant part of demonstrating compliance rests with the department's ability to produce applicable policies,

procedures, training notes, and any other records that might be required (e.g., hazardous exposures and critical injuries). To demonstrate due diligence (that everything is being done under the circumstances to protect the worker), the employer should maintain and monitor its systems [PPE, training, self-contained breathing apparatus (SCBA), risk management, IMS, etc.] regularly. The types of records that should be maintained include but are not limited to the following:

(1) Training
(2) Vehicle inspections and repairs
(3) PPE/SCBA equipment log
(4) Critical injuries
(5) Exposures

A checklist of applicable topics covered by legislation that requires SOP/Gs (hazmat, confined space, respirator use, etc.) can be created both to serve as a useful tool and to help demonstrate diligence. The same checklist can be used to assess any gaps and prioritize topics, SOP/Gs, and so forth, for development.

A.4.6.1 The following examples include but are not limited to areas that should be utilized to reduce the frequency and severity of accidents, occupational injuries, and occupational illnesses:

(1) Hazard recognition, assessment, control, monitoring, and evaluation
(2) Risk management principles and practices
(3) Review/evaluation of SOP/Gs
(4) Review of accident, occupational injury, and occupational illness data
(5) Facility inspections program (i.e., slips, trips, falls, cuts)
(6) Health maintenance and monitoring program (i.e., wellness, fitness, nutrition, stress reduction, musculoskeletal disorder prevention, exposure protection)
(7) Review of department training and education programs

A.4.6.2 Instruction methods, media/means, and materials will vary according to the potential hazards and risks associated with the operation as identified in the risk management plan. SOP/Gs, training notes, videos, and so forth, might suffice in some areas. The goal is to ensure that all members possess the requisite knowledge and skills to perform the required tasks in a safe and effective manner.

A.4.6.4 A periodic safety audit or survey of fire department operations, apparatus, equipment, facilities, training and education programs, and SOP/Gs requires a standard against which to determine compliance with applicable federal, state/provincial, and local laws, codes, and standards. At a minimum, Chapters 6 through 16 should be used to determine an acceptable level of compliance. The *Fire Service Occupational Safety, Health, and Wellness Program Worksheet(see Annex H)* can be used as an audit template to evaluate the effectiveness of the department's accident prevention program. This worksheet was developed to provide a template for fire departments that are implementing an occupational safety and health program or that are evaluating the current status of their occupational safety and health program.

An internal audit should be conducted at least annually and an external audit should be conducted every three years, as required by Chapter 6.

A.4.7.4 Hazard identification and control are methods to reduce accidents, injuries, and loss. Ultimately, accidents are investigated to determine both immediate and basic causes. Once those causes have been identified, controls can be put in place to help prevent future occurrences.

A.4.10.1 This should include food handling and food storage, with particular attention paid to food preparation and serving surfaces; cookware; service vessels and utensils; and safe hot water temperatures in kitchens, showers, and other sources to prevent scalds. The inspection procedure should also consider blocked hallways, staircases, unlit areas, and so forth, for clothing and other debris that would expose firefighters and other people present to hazards; and security for the protection of a company leaving an empty firehouse, with special attention given upon return to objects that do not belong there.

A.4.10.2 A checklist or audit template as identified in Annex K, or equivalent, is strongly recommended when conducting these inspections.

A.4.12.5 This includes the mitigation of health and safety hazards brought about by disruptions due to parades, ball games, visitors to the fire station, street construction, or other events or activities associated with the district or the fire station.

A.5.1.2 In cases where a member sustains a serious or fatal injury, the ISO could be viewed as a witness as opposed to an investigator. In these cases, the designated ISO should notify the department's HSO to fulfill the investigative requirements of the department. In cases where the designated ISO is the department's HSO, the ISO should notify the IC and AHJ before starting the investigative process, that potential conflict exists.

A.5.2.2 A simulated emergency incident can be accomplished through the use of a live training fire or a written scenario that is illustrated with photographs, video, or computer simulations.

Ideally the Incident Action Plan (IAP) should be written, but this might not always be practicable. The components of a good IAP should include, but not be limited to, strategy, clear objectives and assignments, declared risk level, PPE appropriate for the task, clear chain of command, supporting tactical assignments within risk management criteria, safety considerations, and contingencies.

Generic risk management criteria associated with emergency incidents are covered in Section 10.4 of this standard.

When considering risk management, fire departments should consider the following rules of engagement after evaluating the survival profile of any victims in the involved compartment:

(1) We will risk our lives a lot, in a calculated manner, to save SAVABLE LIVES.
(2) We will risk our lives a LITTLE, in a calculated manner, to save SAVABLE property.
(3) We WILL NOT risk our lives at all for buildings or lives that are already lost.

ISOs must apply their knowledge to determine if the most appropriate action is to alter, suspend, or terminate the activity. For example, a ladder as a means of egress can be moved (altered). The order to initiate fire attack might be delayed (suspended) until ventilation is completed, or firefighters might be ordered off a roof (terminated) where the structural integrity has been compromised.

A.5.2.7 Figure A.5.2.7 shows the concept of control zones. The hot zone is the area presenting the greatest risks to members and will often be classified as an immediately dangerous to life or health (IDLH) atmosphere.

The warm zone is a limited-access area for members either directly aiding or indirectly supporting operations in the hot zone. Significant risk of human injury (respiratory, exposures, etc.) can still exist in the warm zone.

The cold zone establishes the public exclusion, or clean, zone. There are minimal risks for human injury and exposure in a cold zone.

Any control zone can include a no-entry zone. Examples of no-entry zones are holes in floors, explosive devices, and crime scenes.

Wherever possible, control zones should be identified with colored hazard tape, signage, cones, flashing beacons, fences, or other appropriate means. However, because of the nature or location of the incident, available resources, or other considerations, it might not always be possible or practical to mark the control zones.

Where colored tape is used to mark control zones, it is recommended that the following tape colors be used:

(1) No-entry zone: red/white chevron
(2) Hot zone: red
(3) Warm zone: yellow
(4) Cold zone: green

A.5.2.10 Types of incidents that might require assistant ISOs and/or technical specialists include but are not limited to high-rise fires, hazardous materials incidents, and special operations.

Assistant ISOs should be considered where the size of the incident might require more than one ISO (e.g., A side and C side), there are multiple functions (e.g., high rise fire requiring an ISO to oversee evacuation or ventilation), or there are complex incidents (e.g., watch for partial collapse in specific areas).

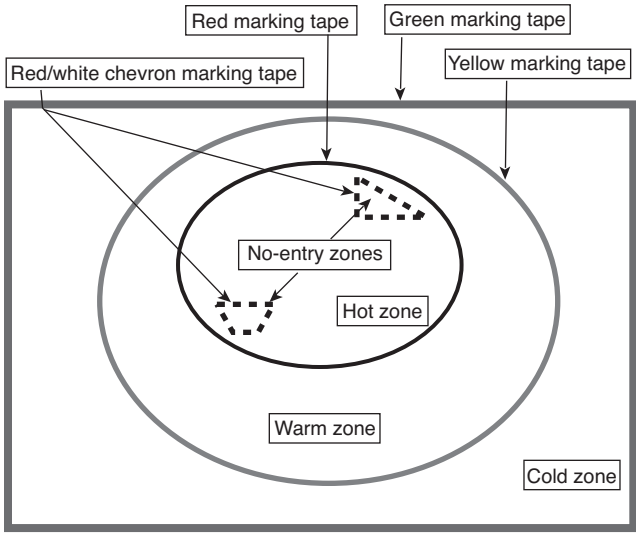

FIGURE A.5.2.7 Example of Control Zones.

A.5.2.12 The ISO should demonstrate the ability to identify the components and associated hazards of common hazardous energy sources such as the following:

(1) Electrical generation and distribution systems
(2) Utility gas systems, such as natural gas and propane
(3) Water distribution systems
(4) Pressurized commodity storage and piping vessels
(5) Fuel storage and delivery systems for vehicles and service stations

In addition to the identification of components and hazards of hazardous energy systems, the ISO should demonstrate the ability to create and communicate appropriate mitigation or zoning strategies to minimize hazard exposure to responders.

This educational pursuit should be accompanied with practice through scenario-based testing and/or actual supervised on-scene application at incidents.

A.5.2.13 Many departments have a number of means to access behavioral health services. In some cases, the IC might need to be relieved of dealing with member stress and another means of activating this service considered.

A.5.3.1 The intention of this requirement is that the ISO check to see that the IC has established a rapid intervention team. In cases where this has not happened, the ISO should inform the IC of the need.

A.5.3.2 Where the RIC requirement has been met, the ISO should meet with the RIC leader and share information and observations, such as fire conditions, building construction, access and egress, hazardous energy, and other pertinent hazards.

The intention of this requirement is that the ISO check to see that the IC has established an RIC. In cases where this has not happened, the ISO should inform the IC of the need.

The need for RIC should be determined by evaluating the relationship of environmental factors (hazards and characteristics of the location) with operational factors (tasks being performed). An RIC should be established in accordance with Chapters 6 through 16 of this standard when members are deemed to be working in IDLH environments.

A.5.3.3 The ability of the ISO to evaluate structural fires and/or building collapse situations and offer judgment on integrity and initial and further collapse concerns cannot be overemphasized. To accomplish this, the ISO should pursue initial and ongoing education in the following areas:

(1) Building loads and forces, structural elements, and structural assemblies
(2) Building construction types (classic and emerging)
(3) Building material strengths, and weaknesses and the effects of fire and heat
(4) Fire spread potential through different building types
(5) Historical building collapse factors from investigative reports
(6) Analytical approaches to predicting building collapse at structural fires
(7) Building collapse classifications and the associated hazards with each type

Additionally, the ISO should have a working knowledge of local building pre-fire plans and target hazard buildings. On-site building familiarization tours and discussions with building

engineering officials are invaluable educational experiences that can help the SO better understand collapse potentials before an actual incident.

These educational pursuits should be accompanied with practice through scenario-based testing and/or actual supervised on-scene application at building fires.

A.5.3.4 The ISO should monitor fire and smoke conditions and make a judgment about fire growth potential, the likelihood of flashover and a hostile fire event, and the progress of firefighting efforts. To achieve this ability, the ISO should pursue education in the following areas:

(1) Modern compartmentalized fire behavior theory
(2) Hostile fire event warnings, including flashover
(3) Fire load (fuel) characteristics
(4) Temperature and heat release rate influences on fire growth
(5) Impact of ventilation (intake and exhaust) on fire spread, including wind-fed effects on buildings fires
(6) Reading smoke skills: the ability to interpret smoke volume, flow (pressure), density, and color
(7) Evaluation of firefighting efforts (fire flow application and ventilation)
(8) Technical reports and investigations that detail fire behavior concerns

These educational pursuits should be accompanied with practice through scenario-based testing using actual fire ground video footage of previous incidents.

A.5.3.5 The intent of this JPR is for ISOs who are assigned to National Incident Management System (NIMS) Types 4 and 5 incidents. ISOs at NIMS Types 1, 2, and 3 incidents require qualification and specialized study.

A.5.4.1 Some functions are performed best by individuals with specific expertise, particularly in highly technical areas. The designated ISO can utilize members with specific expertise in the technical specialist or assistant ISO role. In such cases, the ISO can address overhead safety functions, while the technical specialist or assistant ISO can address safety functions for those with specific special operations expertise.

Technical search and rescue incidents require an incident safety officer for the following:

(1) Potential risks to members needed
(2) Substantial number of members to control an incident
(3) Duration of the incident

A.5.4.3 Confined-space incidents require an incident safety plan and a pre-entry safety briefing for all members operating at the incident [29 CFR 1910.146(b)(4)]. It is advisable that all special operations incidents utilize a similar approach. Where a technical specialist or assistant ISO is utilized, the incident safety officer should utilize his or her input to help develop the plan and briefing. The incident safety plan should include the following:

(1) Safety and health risks that might be encountered for each member
(2) Member training requirements for each assignment
(3) PPE required for each member assignment
(4) Medical surveillance requirements
(5) Frequency and type of monitoring of air, personnel, and environmental factors
(6) Decontamination procedures
(7) Member emergency and rapid intervention procedures
(8) Chain of command and communication plans
(9) Overview of the incident action plan

A.5.5.1 Fire department responses to hazardous materials incidents are classified by the level of intervention required and the resource capability of the responders. Classifications include the following:

(1) First-responder level
(2) Operations level
(3) Technician level

Because of the knowledge and expertise required at a technician-level hazardous materials incident, the ISO should have an understanding of these operations. This can be achieved by training to the hazardous materials technician level of NFPA 470. In cases where the designated SO does not possess the technician-level training, appointing a technician-level trained assistant safety officer (ASO-HM) or technical specialist with the necessary training will help satisfy the safety needs of the technician-level members.

Title 29 CFR 1910.120 requires the incident commander to designate a "safety officer, who is knowledgeable in the operations being implemented at the emergency response site." This has been interpreted to apply to hazardous materials emergency incidents and confined-space rescue incidents. The appointment of a technical specialist or an ASO-HM can meet this requirement where the incident safety officer does not possess the knowledge, training, or experience to handle such incidents.

Hazardous materials incidents require an ISO for the following:

(1) Potential risks to members
(2) Substantial number of members needed to control an incident
(3) Duration of the incident

A.5.5.3 Title 29 CFR 1910.120 requires that a site safety and health plan (incident safety plan) is developed at hazardous materials incidents (technician-entry type incidents). All incident responders are required to receive a safety briefing pre-entry. Where technical specialists are utilized, the ISO should utilize their expertise to help develop the plan. The incident safety plan should include the following:

(1) Safety and health risks that might be encountered for each member
(2) Member training requirements for each assignment
(3) PPE required for each member assignment
(4) Medical surveillance requirements
(5) Frequency and type of monitoring of air, personnel, and environmental factors
(6) Decontamination procedures
(7) Member Emergency and rapid intervention procedures
(8) Chain-of-command and communication plans
(9) Overview of the incident action plan

To prepare an incident safety plan and briefing, the SO should collect information from several sources, including the following:

(1) Planning meetings
(2) The incident action plan
(3) Surveillance and reconnaissance efforts

(4) Product information and documentation by technical specialists

Following information gathering, the SO should prepare an incident safety plan (using established forms) and safety briefing checklists for members. Once created, the SO should ensure that members receive a formal briefing and document who has received the briefing.

Demonstrating competency for this JPR can be achieved through supervised performance during hands-on drills as well as table-top exercises.

A.5.5.4 Often, it is the SO who provides input for the creation of common hazmat control zones, which can include the following:

(1) No-entry zone
(2) Hot zone (IDLH reduction zone)
(3) Hazard reduction zone (decontamination)
(4) Support zone
(5) Cold zone

The method of zone communication also should be addressed. The AHJ typically outlines the zone communication method using traffic cones and barrier tape. Chapters 6 through 16 of this standard outline a general zone communication method that uses color-coded barrier tapes:

(1) No-entry zone: red and white chevron or diagonal striped tape
(2) Hot zone: red tape
(3) Warm zone: yellow tape
(4) Cold (support) zone: green tape

Demonstrating competency for this JPR can be achieved through supervised performance during hands-on drills and should include diagramming the zones (written) as well as directing members who set up the zones.

A.5.6.1 The ISO assigned to an incident where an injury, accident, or near-miss occurs should start, but not necessarily finish, the investigative process. An ISO who is a witness to the events might not offer a nonjudgmental approach to the investigation.

A.5.7.1 The ISO should document pertinent information about the incident, including assignments given by the IC, the incident safety plan, procedures that worked well, obstacles encountered and how to correct them, and accidents and/or injuries.

It is important to include successful or positive actions as well as those actions that require training or procedural changes to improve incident safety and health for all members.

A.5.7.2 The ISO should be prepared to address issues relating to PPE, personnel accountability, rapid intervention posture, rehabilitation operations, the incident action plan, risk versus gain, and other issues affecting the safety and welfare of members at an incident scene.

The ability to listen to others and frame input in a constructive manner is essential for the ISO. The ISO should focus on factual observations and avoid placing blame. Judgmental statements should be reserved for interpretation of environmental conditions (fire, smoke, building integrity, etc.) as opposed to member actions.

A.6.1.2.3 It is possible that an existing program or policy can satisfy the requirements of this standard; if so, it can be adopted in whole or in part in order to comply with this standard. Examples of such existing programs and policies can be a mandatory SCBA rule, seat belt rule, corporate safety program, or municipal member assistance program (MAP). 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 to reduce the probability of occupational fatalities, illnesses, and disabilities affecting fire service personnel.

A.6.1.4.1 In no case should the equivalency afford less competency of members or safety to members than that which, in the judgment of the authority having jurisdiction, would be provided by compliance with meeting the requirements of Chapter 7.

A.6.1.5.1 The specific determination of the authority having jurisdiction depends on the mechanism under which this standard is adopted and enforced. Where 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. Where the standard is legally adopted and enforced by a body having regulatory authority over a fire department, such as the federal, state, or local government or a political subdivision, this body is responsible for making those determinations as the authority having jurisdiction. The plan should take into account the services the fire department is required to provide, the financial resources available to the fire department, the availability of personnel, the availability of trainers, and such other factors as will affect the fire department's ability to achieve compliance.

A.6.1.5.2 For a fire department to evaluate its compliance with this standard, it must develop some type of logical process. The worksheet in Annex H (Figure H.2) illustrates one way that an action plan can be developed to determine code compliance.

This standard is intended to be implemented in a logical sequence, based upon a balanced evaluation of economic as well as public safety and personnel safety factors. The compliance schedule request ensures that risk is objectively assessed and reasonable priorities set toward reaching compliance. Interim compensatory measures are intended to ensure that safety action is being addressed until full compliance is reached and formally adopted into the fire department organization's policies and procedures. This can include, but is not limited to, increased inspections, testing, temporary suspension or restriction of use of specific equipment, specialized training, and administrative controls.

A.6.2.1 The organizational statement is a very important basis for many of the provisions of Chapters 6 through 16 of this standard. The statement sets forth the legal basis for operating a fire department, the organizational structure of the fire department, number of members, training requirements, expected functions, and authorities and responsibilities of various members or defined positions.

A key point is to clearly set out the specific services the fire department is authorized and expected to perform. Most fire departments are responsible to a governing body. The governing body has the right and should assert its authority to set the specific services and the limits of the services the fire depart-

ment will provide and has the responsibility to furnish the necessary resources for delivery of the designated services. The fire department should provide its governing body with a specific description of each service with options or alternatives and with an accurate analysis of the costs and resources needed for each service.

Such services could include structural firefighting, wildland firefighting, airport/aircraft firefighting, emergency medical services, hazardous materials response, high-angle rescue, heavy rescue, and others.

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

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

Legal counsel should be used to assure that any statutory services and responsibilities are being met.

The majority of public fire departments are established under the charter provisions of their governing body or through the adoption of statutes. These acts define the legal basis for operating a fire department, the mission of the organization, the duties that are authorized and expected to be performed, and the authority and responsibilities that are assigned to certain individuals to direct the operations of the fire department.

The documents that officially establish the fire department as an identifiable organization are necessary to determine specific responsibilities and to determine the parties responsible for compliance with the provisions of Chapters 6 through 16 of this standard.

In many cases, these documents could be a part of state laws, a municipal charter, or an annual budget. In such cases, it would be appropriate to make these existing documents part of the organizational statement, if applicable.

In cases other than governmentally operated public fire departments, there is a need to formally establish the existence of the organization through the adoption of a charter, the approval of a constitution or articles of incorporation, or some equivalent official action of an authorized body. A fire department that operates entirely within the private sector, such as an industrial fire department, could legally establish and operate a fire protection organization by the adoption of a corporate policy as described in the organizational statement.

In addition to specifically defining the organization that is expected to comply with Chapters 6 through 16 of this standard, 6.2.1 requires that the organizational structure, membership, expected functions, and training requirements be contained in documents that are accessible for examination. These requirements are intended to reinforce the fact that the fire department is an identifiable organization that operates with known and specific expectations.

Where a fire department functions as a unit of a larger entity, such as one of several municipal departments or a particular unit of a private corporation, the larger organization is often able to provide some of the same elements that are required to be provided by the fire department. This would satisfy the requirements for the fire department to provide those elements.

A.6.2.2 Additional information on fire department organization and operations can be found in Section 13 of the NFPA *Fire Protection Handbook* and in Chapter 4 of *Managing Fire and Emergency Services*, published by the International City/County Management Association.

A.6.2.5 They should be done in accordance with NFPA 1660 to provide assistance to responding personnel in effectively managing emergencies for the protection of occupants, responding personnel, property, and the environment.

A.6.2.5.1 They should be done in accordance with NFPA 241.

A.6.3.1 The risk management plan should consider all fire department operations, the duties and responsibilities of members (uniform and civilian), and policies and procedures. The risk management plan should include goals and objectives to ensure that the risks associated with the daily operations of the fire department are identified and effectively managed.

For additional guidance on the development of a risk management plan, see NFPA 1250.

A.6.3.2(7) These could include fire inspections of new construction, fire inspections of existing buildings, pre-fire planning activities, public education, mass gatherings, planned events, and community risk reduction activities. As an example, conducting fire inspections on a new construction job site has a specific set of risk exposures that should be incorporated into a risk management plan with appropriate risk mitigation practices including training and PPE.

A.6.3.3 The entire risk management decision-making process can be summarized as follows:

(1) Identify or recognize
(2) Evaluate
(3) Establish priorities for action
(4) Act and control
(5) Monitor and re-evaluate

Discussions about frequency and risk arise in the evaluation phase. What are the real or potential risks in terms of frequency and severity to fire department members? How will the organization develop effective control measures to ensure a safe work environment for all members?

Since no two fire departments are alike, there is no standard scale to measure and evaluate frequency and risk. Some fire departments will have a greater or lesser degree of tolerance for risk than others. The intent of the risk management process is for a fire department to develop a standard level of safety. This standard level of safety defines the parameters of the acceptable degree of risk for which members perform their job functions.

By definition, frequency is how often something does, or might, happen. Risk is a measure of the consequences if an undesirable event occurs. There are many factors that enter into the risk discussion, including cost, time lost from work, loss of use of resources, inability to deliver services, and fewer services available. Each risk will have its own set of factors that

will dictate how the fire department will try to determine how severe the consequences might be.

This scale is used to establish the degree of priority. Priority of the risk is in direct relation to inherent risks that have had a harmful effect on the department and its members.

A primary purpose of the risk management plan is to focus efforts on incidents that might not occur very often (low frequency) but that could have severe consequences associated with them (high risk). The reason for the focus on low frequency/high risk incidents is that since they do not occur on a frequent basis, responders might not be as prepared to deal with them, and the outcomes can be harmful or detrimental to firefighters. Examples of low frequency/high risk events could include high rise fires, technical rescues, multi-alarm fires, or mass casualty incidents.

There are two factors that will ensure that a low frequency/high risk event will be successful. The first factor is an aggressive training program. Every day is a training day. With an aggressive training program, this will ensure the successful outcome of an incident. The second factor is rapid prime decision making. Personnel, through training and continuous retraining, have the necessary knowledge, skills, and abilities (KSA) to ensure the successful outcome of a low frequency/high risk incident.

Figure A.6.3.3 illustrates the relationship between frequency and risk, and emphasizes the importance of addressing low frequency/high risk incidents.

A.6.4.1 The following is an 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 could be involved in fire department activities.

A.6.4.3 Experience has shown that there is often a significant difference between a written occupational safety, health, and wellness program and the actual program that has been implemented. Periodic evaluations are one method the fire chief can use to measure how the program is being conducted. This evaluation should be conducted by a qualified individual from outside of the fire department because outside evaluators provide a different perspective, which can be constructive. Outside evaluators could include municipal risk managers, safety directors, consultants, insurance carrier representatives, fire chiefs, safety officers, or others having knowledge of fire department operations and occupational safety, health, and wellness program implementation.

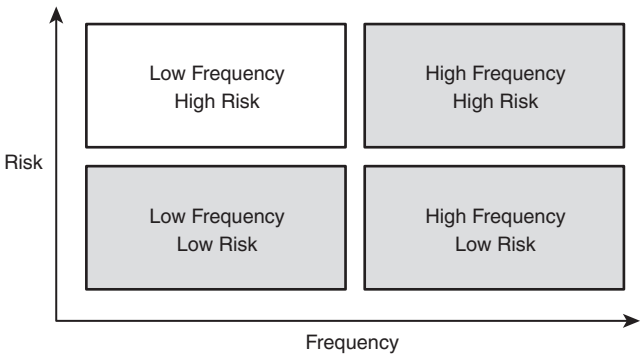

FIGURE A.6.3.3 Risk and Frequency Graph.

A.6.5.3 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 if necessary, 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.6.5.5 The importance of investigating accidents to personnel, equipment, or vehicles in relation to the prevention of reoccurring accidents is time-proven. However, the occurrence of an accident is, fortunately, relatively rare considering the amount of action carried out by fire service members. Relying solely on accident data to prescribe safety procedures is analogous with closing the birdcage after the bird has escaped.

Compared to the actual number of accidents reported, a host of incidents known as near-misses occur. The philosophy of investigating near-miss incidents deserves merit. There are countless "almost-accidents" that occur every day.

In an effort to truly prevent more accidents, and to effectively manage the safety of the personnel, near-miss incidents should be documented and quantified to truly determine the exposures to risk that people, equipment, and vehicles are exposed to each day. These incident investigations begin with a culture that readily accepts near-miss incident reports without penalty or ridicule. A system should also be in place to investigate the near-miss incident to determine the causal factors involved. Examples can include human error, lack of education or training, lack of familiarity with or operation of equipment, or equipment malfunctions or design shortcomings.

Managing the infinite possibilities of near-miss incidents and accidents is laborious and seems overwhelming. Attention to the risks measured in the workplace and investigation into the potential incidents and accidents is, arguably, the beginning of an effective safety process.

See also A.6.5.3.

A.6.5.5.4 The National Fire Fighter Near-Miss Reporting System is a voluntary, confidential, non-punitive, and secure reporting system with the goal of improving firefighter safety. Submitted reports are available at www.firefighternearmiss.com and should be reviewed by members.

A.6.6.1 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 could 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 responsibility of the

joint safety and health committee should be outlined in detail through written procedures or contractual negotiation.

A.6.6.3 The requirement in 6.6.3.1 for one regularly scheduled meeting every 6 months is intended as 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 can be aware of issues under discussion and actions that have been taken.

A.6.7.1 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 will allow compatibility with national and regional reporting systems.

A.6.7.2 Firefighter exposure data collection systems should include, at a minimum, the data elements and queries found in the DHS/FEMA/AFG funded National Fire Operations Reporting System (NFORS). The data elements and queries included in NFORS were developed by experts from the CDC, NIOSH, OSHA, University of Miami, University of Arizona, and experienced stakeholders in firefighter exposure systems from California and Washington State. NFORS data elements and exposure queries cover all aspects of firefighter response and provide individual firefighters with a personal career diary. The list of NFORS data elements and queries can be viewed at www.nfors.com.

A.6.7.4 See NFPA 1401 for further information and guidance.

A.7.1.1 The primary goal of all training, education, and professional development programs is the reduction of occupational injuries, illnesses, and fatalities. As members progress through various job duties and responsibilities, the department should ensure the introduction of the necessary knowledge, skills, and abilities to members who are new in their job titles, as well as ongoing development of existing skills.

These programs should include information to ensure that members are trained prior to performing individual duties, as well as ongoing professional development to ensure competency.

Training programs should include but not be limited to the following:

(1) Community risk reduction (fire prevention, public education, investigation, etc.)
(2) Health and safety
(3) Fire suppression
(4) Emergency medical
(5) Human resources (leadership, supervision, interpersonal dynamics, equal employment opportunity, etc.)
(6) Incident management system
(7) Hazardous materials
(8) Technical rescue
(9) Information systems and computer technology
(10) Position-specific development (firefighter, company officer, chief officer, telecommunicator, investigator, inspector, driver/operator, etc.)

A.7.1.4 The use of a structured on-the-job training (OJT) program with close supervision can assist fire departments to utilize new members in non-IDLH environments during emergency operations.

A.7.1.8 For maintenance of structural and proximity PPE refer to NFPA 1851. Departments should develop a training schedule that, at minimum, should include training for new firefighters and for all members when there is a change in equipment.

A.7.2.2 Statistics presented by the National Fire Protection Association (NFPA) and the United States Fire Administration (USFA) indicate an alarming trend in the increased number of firefighter fatalities and injuries associated with vehicle operations. Fire departments respond with a variety of apparatus, and the members operating this apparatus must have the appropriate knowledge, skills, and abilities to operate this apparatus.

The first step in this process is to properly train and educate members on the various types of apparatus they could be required to operate. NFPA 1451 provides the curriculum for members to develop the necessary knowledge, skills, and abilities to meet the requirements of 7.2.2. The second step is to ensure that the fire department performs an annual proficiency evaluation of all drivers/operators as required by Section 7.5. Also, the training and education should address the standard operating procedures associated with vehicle operations, especially emergency response.

These are necessary components of the department's plan to reduce the risks associated with vehicle operations. This is a systems approach to ensure the safety and health of members and the citizens they serve.

A.7.2.6 In the United States, federal regulations require a minimum amount of training for fire service personnel who respond to hazardous materials incidents. These requirements can be found in 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response" (OSHA), and in 40 CFR 311, "Worker Protection" (EPA). These regulations affect all fire departments in the United States whether full-time career, part-time, combination career and volunteer, or fully volunteer. These regulations apply in all states and not just in those states with federally approved state OSHA programs.

In the US federal regulations, First Responder Operations Level is defined as follows:

"First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposure. First responders at the operational level shall have received at least 8 hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed in the awareness level and the employer shall so certify:

(1) Knowledge of the basic hazard and risk assessment techniques
(2) Knowing how to properly select and use proper personal protective equipment provided to the First Responder Operations Level
(3) An understanding of basic hazardous materials terms

(4) Knowing how to perform basic control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit
(5) Knowing how to implement basic decontamination procedures
(6) An understanding of the relevant standard operating procedures and termination procedures"

The First Responder Operations Level in both the US federal regulations and NFPA 470 are similar. Whereas the US federal regulations (29 CFR 1910.120 or 40 CFR 311) govern the fire service in every state in the United States, the minimum level of training for all firefighters must be the First Responder Operations Level.

A.7.3.1 In order to ensure compliance with the minimum requirements of NFPA 1010 fire department training programs should be accredited by a training organization such as a state fire training agency. In addition, NFPA 1405 provides recommended guidelines for those members who respond to marine vessel fires.

A.7.3.5 The essence of any successful respiratory protection training program is the establishment of written operational policies and the reinforcement of those policies through comprehensive training.

The AHJ should ensure that each member demonstrates knowledge of at least the following:

(1) Why respiratory protection equipment (RPE) is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator
(2) What the limitations and capabilities of the RPE are
(3) How to use the RPE effectively in emergency situations, including situations in which the RPE malfunctions
(4) How to inspect, put on and remove, use, and check the seals of the facepiece
(5) What the procedures are for maintenance and storage of the respiratory protection equipment
(6) How to recognize medical signs and symptoms that can limit or prevent the effective use of RPE
(7) The requirements of Section 9.11

A.7.3.9 Members can be trained and/or certified at the local, state, or national level in basic life support (BLS) or advanced life support (ALS). Jurisdictions can require specialty skills within certain levels.

A.7.3.10 To reduce the risk of an injury or illness members should wear protective ensemble elements that are suitable and appropriate and maintained in a clean and serviceable condition. Members should exercise caution when wearing personal clothing, accessories, or personal equipment items that these items do not adversely affect the performance of the protective ensemble or ensemble element. It is recommended that clothing meeting the requirements of NFPA 1970 be worn whenever possible. Clothing that can melt, drip, burn, shrink, transmit heat, or ignite should not be worn. For care and maintenance of structural and proximity PPE, refer to NFPA 1851.

To avoid the possibility of injury or burns, members should wear clothing made of material that will provide the best protective levels available. It is recommended that Nomex or other fire-resistant clothing be worn whenever possible. Clothing that can melt, drip, burn, shrink, transmit heat, or ignite should not be worn.

A.7.3.13.1 The AHJ should ensure that each member of the fire department is trained on and understands the decontamination process and associated risks of cross-contamination. The root of this training depends on the establishment of key policies and procedures related to occupational hazards and the best practices to prevent exposure to cancer via absorption, inhalation, and ingestion. Members need to be trained in the proper transportation and storage of PPE and the prohibition of these contaminated items from personal living spaces and vehicles, as it relates to cancer. Key questions necessary to determine the knowledge and skills required for the assessment include the following:

(1) What should I do first?
(2) How do I protect myself?
(3) How do I identify the hazards?
(4) How do I prepare for the decontamination process? What are the goals and objectives?
(5) How do I put the process into action?
(6) How do I conduct the operation?
(7) How do I evaluate program effectiveness? How clean is "clean"?
(8) What do I do with evaluation results?
(9) What documentation is required to be completed?
(10) How long do I need to keep the documentation?

A.7.5.3 An annual skills check should address the professional qualification specific to a member's assignment and duty expectation. As an example, a firefighter is checked for skills required by Chapters 4 through 7 of NFPA 1010. A driver/operator would be checked for skills required by Chapters 8 through 14 of NFPA 1010.

A.7.6.1 Fire departments can utilize instructors who are not necessarily trained and/or certified to the requirements of NFPA 1041. However, in using these instructors they should ensure that they are familiar with the fire department, its organization, and its operations and, in addition, are qualified in that particular area of expertise.

A.7.6.2 Several accidents have occurred where smoke bombs or other smoke-generating devices that produce a toxic atmosphere have been used for training exercises. Where training exercises are intended to simulate emergency conditions, smoke-generating devices that do not create a hazard are required.

A.7.6.3 Hands-on training can present significant risks to personnel. A risk assessment should consider the potential for injury to members and actions that can be taken to mitigate those risks. Training scenarios might pose several risks, including, but not limited to, the following:

(1) Musculoskeletal injuries (e.g., strains and sprains)
(2) Falls
(3) Overexertion, which might lead to heat-related illnesses
(4) Cardiac events

The emergency medical capabilities that should be considered include, but are not limited to, the following:

(1) The provision of pre-placed equipment and supplies (e.g., defibrillators, backboards, emergency kits)
(2) The availability of EMS staffing
(3) The availability of transport capabilities

A.8.1.1 It is recommended that only apparatus that were designed and manufactured to meet the 1991 or later editions of the NFPA fire apparatus standards or that have been refur-

bished in accordance with NFPA 1912 to meet the 1991 or later editions of the NFPA fire apparatus standards be permitted to operate in first-line service. This will ensure that, while the apparatus might not totally comply with the current edition of the automotive fire apparatus standards, many of the improvements and upgrades required by the standards since 1991 are available for the firefighters who use the apparatus.

It is recommended that an apparatus manufactured prior to 1991 that is less than 25 years old, that has been properly maintained, and that is still in serviceable condition be placed in reserve status and upgraded to incorporate as many features of the post-1991 fire apparatus as possible. Apparatus not manufactured to NFPA fire apparatus standards or that is over 25 years old should be replaced.

See Annex G of NFPA 1900 for more complete guidelines for first-line and reserve fire apparatus.

A.8.1.4.1 Fire departments that provide EMS transport should consider using a power-assisted patient cot to load patients into an automotive ambulance. A fire department should conduct a feasibility study for the utilization of power-assisted patient cots or self-loading cots.

A.8.1.6 The means of holding the item in place or the compartment should be designed to minimize injury to persons in the enclosed area of the fire apparatus or patient compartment of an ambulance. Loose equipment during the event of a crash, a rapid deceleration, or a rapid acceleration can be the cause of serious injury or the crash of the apparatus.

A.8.2.1 NFPA 1451 can be used to meet the requirements of an "approved driver training program."

A.8.2.2 The determination of driver's license requirements is a function of a particular authority in each location. This agency can be a state or provincial Department of Transportation or an equivalent agency. Other authorities, such as military branches, have the authority to issue permits to operate their vehicles. It is a responsibility of the fire department to determine the requirements that apply in each situation and for each class of vehicle.

A.8.2.3 Policies should be enacted to limit unnecessary and inappropriate emergency response, as a means of reducing the risk of accidents involving emergency vehicles.

A.8.2.4 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.8.2.7 The development, implementation, and periodic review of standard operating procedures for driving any fire department vehicle is an important element in clearly identifying the fire department's policy on what is expected of drivers. Safe arrival is of prime importance. Standard operating procedures should include a "challenge and response" dialogue between the vehicle driver on an emergency response and the officer or other member in the driver compartment. The "challenge and response" dialogue should be instituted to determine the driver's intentions when approaching any perceived or identified hazard on the response route, to remind the driver of the presence of the hazard and the planned procedures for managing the hazard, and to ensure that the driver is coping with stressors encountered during the response and not focusing only on arriving at the site of the emergency.

The specific inclusion of railroad grade crossing is based upon recommendations made by the National Transportation Safety Board (NTSB) to NFPA following the 1989 investigation of a collision between a fire department pumper and a passenger train. The NTSB report states that "planning how to safely traverse grade crossings encountered en route is a necessary part of any fire company's response plan."

NTSB recommends that the following be considered when developing the plans:

If it is not practical to plan an emergency response route that avoids grade crossings, selection of crossings that are equipped with automatic warning devices is preferable to selection of those that are not. All planning should include identification of the location at the crossing from which a driver or other observer assigned to the apparatus can see the maximum available distance down the track(s) on both sides.

At crossings over a single straight track with no nearby obstructions, briefly stopping or slowing the apparatus to allow a proper scan both left and right can be sufficient. If the tracks are curved, vision is obstructed, or the crossing has more than one set of tracks where the presence of one train could hide the approach of another, sight distance can be optimized by having one or more members cross the tracks on foot and look for approaching trains.

Firefighter fatality studies describe 10 incidents that occurred from 1984 to 2004 in which firefighters were killed during the backing of fire apparatus. This is a significant issue that the fire service must address in terms of standard operating procedures, training programs, and implementation.

When fire apparatus is in the backing mode, standard operating procedures need to dictate that members assigned to back apparatus be in communication with the driver/operator. This can be accomplished by using the radio system, intercom system, or other means. Standard operating procedures should dictate that the apparatus not be moved until verbal and visual contact is made with the driver/operator and the backer. Also, standard operating procedures must dictate that the backer be in the line of sight with the driver/operator via the apparatus mirrors on either side of the apparatus. The intent is to ensure that the backing of fire apparatus is accomplished in a safe and effective manner.

A.8.2.7.1 Many incidents require the nonemergency response of fire apparatus. Each fire department must identify incidents that do not require the use of warning lights and sirens. Examples of nonemergency incidents can include lockouts, carbon monoxide detectors sounding, a fire reported out, assist law enforcement, backfills or move-ups, and other incidents as determined by the AHJ. The intent is to reduce the risk to fire department members and the citizens of the community from unnecessary harm. The response can always be upgraded to emergency response if the situation warrants based upon additional information.

Fire department water tankers (tenders) provide a mobile water supply to support firefighting and other fire department operations. They are generally used in rural areas without fire hydrant coverage but can also be found in the fleets of many suburban and urban fire departments.

Although their number as a percent of the overall apparatus fleets is small, estimated at just 2 percent, they are involved in a disproportionate number of crashes that are fatal to firefighters

and others. A study of firefighter fatalities from 1990 through 2000 found that fire tankers were the second most common vehicle type involved in crashes that killed firefighters. Tankers/tenders were second only to personal vehicles in the number of fatal crashes.

The United States Fire Administration (USFA) produced a report entitled *Safe Operation of Fire Tankers* in 2003. The report (FA-248) is available free from the USFA in print and can be downloaded from the USFA web site at www.usfa.fema.gov. The report provides comprehensive information on the safe construction, use, and operation of fire department tankers/tenders. The report deals with fire apparatus with water tank sizes of 1000 gal (3800 L) or more. The recommendations contained in the report, therefore, can apply to any piece of fire apparatus with a large water tank.

Attention to a small number of operational recommendations can make the operation of fire tankers/tenders safer for firefighters and those that share the road with this type of apparatus.

The following recommendations should become part of standard operating procedures for departments operating tankers (tenders):

(1) Firefighters should always wear seat belts when driving or as the passenger in any vehicle, including tankers/tenders. The firefighter's best chance for survival is to remain with the vehicle during a crash and to be protected by the structure of the vehicle. During the period from 1990 to 2001, 82 percent of the firefighters killed in tanker/tender crashes were not wearing seat belts.
(2) If the right-hand wheels of the apparatus leave the paved surface of the roadway for any reason, the apparatus should be slowed before attempting to return all wheels to the roadway. In 66 percent of the fatal tanker/tender crashes from 1990 to 2001, the right wheels of the apparatus left the roadway. If the vehicle is returned to the roadway surface at speed, the apparatus can veer violently to the left. Drivers then often overcompensate by steering to the right, and the apparatus either begins to roll or leaves the roadway and crashes. Slowing the vehicle prior to returning to the roadway will minimize the chances of such an event.
(3) *Slow down.* Speed was cited as a factor in 55 percent of fatal crashes of fire department tankers/tenders from 1990 to 2001. The weight of the water and the weight of the apparatus combine to make fire department tankers/tenders very heavy vehicles. They cannot stop quickly, and their handling characteristics are unlike other fire apparatus. The USFA *Safe Operation of Fire Tankers* report recommends that tankers/tenders never be operated over the posted speed limit and that they be controlled to speeds at or less than the cautionary speeds listed on yellow signs on curves.
(4) Make sure that the apparatus is up to the task. Fuel or milk tankers converted to fire department water tankers usually do not have the brake capacity or tank baffles that are needed to transport water — fuel and milk are lighter than water. The total weight of a tanker/tender should not exceed the rated capacity of the vehicle's braking system. In addition to weight concerns, tankers/tenders must be maintained in a ready state. Their mechanical systems must be checked and maintained on a regular basis.
(5) Ensure that drivers/operators have the necessary knowledge, skills, and abilities to specifically drive and operate tankers/tenders. Tankers/tenders do not operate or have the same driving characteristics as other fire apparatus. Drivers should be specifically trained on each vehicle, and untrained drivers should not be allowed to operate tankers/tenders.
(6) Drive with the tank completely full or completely empty. Even with proper baffling, a semi-full water tank will allow water to move more freely. This water movement can create control problems for the apparatus operator. If the full tank of water is not used, dump the rest of the load in a safe place and drive the tanker/tender empty until the entire tank can be filled.

A.8.2.8 Accidents at intersections contribute to both civilian and firefighter deaths and injuries while fire department vehicles are responding to or returning from an emergency incident. Coming to a complete stop when there are any intersection hazards and proceeding only when the driver can do so safely will reduce accidents and the risk of injury or death. It is recommended that intersection control devices be installed that allow emergency vehicles to control traffic lights at intersections.

A.8.2.10 Vehicle accidents at railroad crossings have resulted in a number of deaths and injuries to fire department members. A study by NTSB concluded that a train's warning horn becomes an ineffective device for warning large vehicles or trucks unless the vehicle driver stops, idles the engine, turns off all radios, fans, wipers, and other noise-producing equipment in the cab, lowers the window, and listens for a train's horn before entering a grade crossing.

A.8.2.14 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 AHJ. All members should be held strictly accountable for compliance with the applicable traffic laws and regulations as well as fire department rules, regulations, and procedures relating to emergency response. Where traffic laws and regulations allow for private vehicles to be operated as emergency vehicles, the fire department should only allow members who have met the requirements to drive fire department vehicles in an emergency mode to drive privately owned vehicles in an emergency mode.

A.8.2.14.2 For more information, see FA-220, *Firefighter Fatality Retrospective Study*, Federal Emergency Management Agency, United States Fire Administration, April 2002.

A.8.3.1 It is intended that the requirements of Section 8.3 apply to all situations when persons or members are riding on fire apparatus other than for the specific variances in 8.3.5 and 8.3.6. Included in the "seated and belted" requirement are any times the fire apparatus is traveling to, participating in, or returning from any funeral, parade, or public relations/education event. Firefighters cannot be allowed to ride on the outside of apparatus in order to fight wildland fires. The Risk Management Committee (RMC) of the National Wildfire Coordinating Group (NWCG) represents the US Forest Service, Bureau of Land Management, Bureau of Indian Affairs, US Fish and Wildlife Service, National Park Service, National Association of State Foresters, Intertribal Timber Council, International Association of Fire Chiefs, and the US Fire Administration. Their position is that the practice of firefighters riding on the outside of vehicles and fighting wildland fires

from these positions is very dangerous, and they strongly recommend this not be allowed. One issue is the exposure to personnel in unprotected positions. Persons have been killed while performing this operation. Also, the vehicle driver's vision is impaired. The second issue is that this is not an effective way to extinguish the fire, as it can allow the vehicle to pass over or by areas not completely extinguished. Fire can then flare up underneath or behind the vehicle and could cut off escape routes. The RMC and the NWCG strongly recommend that two firefighters, each with a hose line, walk ahead and aside of the vehicle's path, both firefighters on the same side of the vehicle (not one on each side), in clear view of the driver, with the vehicle being driven in uninvolved terrain. This allows the firefighters to operate in an unhurried manner, with a clear view of fire conditions and the success of the extinguishment. Areas not extinguished should not be bypassed unless follow-up crews are operating behind the lead unit and there is no danger to escape routes or to personnel.

A.8.3.4 There are instances in which members need to provide emergency medical care while the vehicle is in motion. In some situations, the provision of such medical care would not allow the members to remain seated and secured to the vehicle. Such situations, while they occur infrequently, could include performing chest compressions during cardiopulmonary resuscitation (CPR). If a vehicle accident were to occur while an unsecured member was performing necessary emergency medical care, there would be substantial risk of injury to the member.

A.8.3.5 The following recommendations will assist the user in implementing 8.3.5:

(1) Hose loading procedures should be specified in a written standard operating procedure that includes at least the safety conditions listed in A.8.3.5(2) through A.8.3.5(7). All members involved in the hose loading should have been trained in these procedures.
(2) There should be a member, other than those members loading hose, assigned as a safety observer. The safety observer should have an unobstructed view of the hose loading operation and be in visual and voice contact with the apparatus operator.
(3) Non–fire department vehicular traffic should be excluded from the area or should be under the control of authorized traffic control persons.
(4) The fire apparatus can be driven only in a forward direction at a speed of 5 mph (8 km/hr) or less.
(5) No members should be allowed to stand on the tailstep, sidesteps, running boards, or any other location on the apparatus while the apparatus is in motion.
(6) Members should be permitted to be in the hose bed but should not stand while the apparatus is in motion.
(7) Prior to the beginning of each hose loading operation, the situation should be evaluated to ensure compliance with all the provisions of the written procedures. If the written procedures cannot be complied with, or if there is any question as to the safety of the operation for the specific situation, then the hose should not be loaded on moving fire apparatus.

A.8.3.6 The following recommendations will assist the user in meeting the requirements of the standard:

(1) Tiller training procedures should be specified in a written standard operating procedure that includes at least the safety conditions listed in A.8.3.6(2) through A.8.3.6(6). All members involved in tiller training should have been trained in these procedures.
(2) The aerial apparatus should be equipped with seating positions for both the tiller instructor and the tiller trainee. Both seating positions should be equipped with seat belts for each individual. The tiller instructor should be permitted to take a position alongside the tiller trainee.
(3) The tiller instructor's seat should be permitted to be detachable. Where the instructor's seat is detachable, the detachable seat assembly should be structurally sufficient to support and secure the instructor. The detachable seat assembly should be attached and positioned in a safe manner immediately adjacent to the regular tiller seat. The detachable seat assembly should be equipped with a seat belt or vehicle safety harness. The detachable seat assembly should be attached and used only for training purposes.
(4) Both the tiller instructor and the tiller trainee should be seated and belted.
(5) The instructor and trainee should wear and use both helmet and eye protection if not seated in an enclosed area.
(6) In the event the aerial apparatus is needed for an emergency response during a tiller training session, the training session should be terminated, and all members should be seated and belted in the approved riding positions. There should be only one person at the tiller position. During the emergency response, the apparatus should be operated by a qualified driver/operator.

A.8.3.7 Helmets should be worn by all members in riding positions in an open cab that does not provide the protection of an enclosed cab.

A.8.3.8 Primary eye or face protection, or both, should be issued to members who might ride in either exposed positions in open cab apparatus or open tiller seats. Fire department standard operating procedures should outline the safety issues associated with wearing eye protection while driving.

A.8.3.9 Such alternate means of transportation could include, but not be limited to, other fire apparatus, automobiles, and/or other personnel carriers.

A.8.4.1 The purpose of this paragraph 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 can 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.8.5.6 See A.8.4.1.

A.9.1.1 The provision and use of protective ensemble, ensemble elements, and protective 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. For proper PPE selection, risk assessment as specified in NFPA 1851 should be conducted.

A.9.1.5 Because it is impossible to ensure that every member — whether a volunteer, call, or off-duty career member — will respond to an incident in a station/work uniform or will change into station/work uniform clothing before donning protective garments, it is very important that members understand the hazards of some fabrics that more easily melt, drip, burn, shrink, or transmit heat rapidly and cause burns to the wearer.

Clothing made from 100 percent natural fibers or blends that are principally natural fibers should be selected over other fabrics that have poor thermal stability or that ignite easily.

The very fact that members are firefighters indicates that all clothing that they wear should be inherently flame resistant to give a degree of safety if unanticipated happenings occur that expose the clothing to flame, flash, sparks, or hot substances.

A.9.2.1 The fire department should consider providing each member with two complete sets of structural firefighting protective clothing that meet the requirements of NFPA 1971 whenever possible. It is not reasonable to expect that a fire department would have enough stock protective clothing available to all members in the event that the protective clothing became soiled, wet, or contaminated during daily activities. Firefighters provided with two complete sets of structural firefighting protective clothing can change easily into properfitting garments and will not be unnecessarily exposed or expose the public to contaminants. Structural protective clothing that is cleaned and properly and completely dried before the next use will last longer and provide greater protection than soiled or damp garments.

A.9.2.1.1 Manufacturers offer different protective garments with different patterns and styling. Therefore, one manufacturer's garment of a given size might not correspond to a different manufacturer's garment of the same size. Even when garments are provided based on firefighter measurements, fire departments and individual firefighters should conduct a dynamic fit test, which evaluates the degree of fit of the protective clothing on the firefighter and in particular acts as a check on whether the clothing fits correctly and is neither too tight nor too loose.

A dynamic fit test involves the individual firefighter donning his or her clothing and performing a series of movements to determine whether the clothing provides ease of movement without restriction and does not encumber the firefighter from being excessively loose. Suggested movements include the following:

(1) Reaching overhead and side to side
(2) Bending forward and side to side
(3) Squatting and reaching overhead and side to side
(4) Crawling and duck walking
(5) Climbing a ladder
(6) Glove dexterity

In performing this assessment, it is important for the firefighter and an observer knowledgeable in correct fit to identify any restrictions or encumbrance from the clothing item being assessed. This assessment is also best performed with the firefighter wearing his or her other protective clothing items, such as a helmet, a hood, gloves, and footwear, to further ensure that proper coverage is maintained in interface areas during each movement.

If the clothing does not properly fit, the department or individual firefighter should report any fit problems to the manufacturer or provider of the protective clothing to determine whether a different size or clothing modifications will improve fit.

A.9.2.2 Properly fitting protective clothing is important for the safety of the firefighter. It is important to understand that all protective clothing should be correctly sized to allow for freedom of movement. Protective garments that are too small or too large and protective trouser legs that are too long or too short are safety hazards and should be avoided. Protective coat sleeves should be of sufficient length and design to protect the coat/glove interface area when reaching overhead or to the side. For proper fitting of a firefighter, the protective clothing manufacturer should be contacted to provide sizing instructions.

A.9.2.4.1 Examples of the proper type of safety equipment should include safety data sheets (SDS for information on recommended PPE), eye protection (safety glasses and goggles), disposable nitrile or other types of gloves, fluid-resistant coveralls or waterproof apron, P100 filtering facepiece, sharps containers, and eyewash station.

A.9.2.4.3 Fire departments need to be especially diligent in the handling of protective ensembles and ensemble elements that are or are suspected of being exposed to blood and body fluids. Fire departments are encouraged to review the criteria specified in NFPA 1581 and 29 CFR 1910.1030, "Bloodborne Pathogen Standard."

A.9.2.5.2 Some protective coats, particularly those certified as part of a protective ensemble with the CBRN option, can include different interface components instead of wristlets to provide increased integrity against penetration of CBRN terrorism agents.

A.9.2.7 A drag rescue device (DRD) has been required as part of protective coats and protective coveralls. However, this feature is not present in all garments and the ability to extract firefighters can be undertaken by other means through the use of other equipment and procedures. The specific procedures selected by the fire department should take into consideration the equipment provided to the firefighter, including any elements certified to NFPA 1971, and ensure that any handholds or other means for rapid extrication of the firefighter stay in place on the firefighter when deployed.

A.9.3.1 The technical committee's intent is that members utilize the appropriate protective clothing designed specifically for the type of emergency incident or firefighting activities for which the member is regularly engaged.

A.9.4 Fire department personnel involved in emergency medical operations should be protected against potential medical hazards. These hazards include exposure to blood or other body fluids contaminated with infectious agents such as hepatitis and human immunodeficiency viruses. The purpose of emergency medical protective clothing is to shield individuals from these medical hazards and conversely to protect patients from potential hazards from the emergency responder. Emergency medical gloves are to be used for all patient care. Emergency medical garments and face protection devices are to be used for any situation where the potential for contact with blood or other body fluids is high.

NFPA 1999 covers garments, gloves, and face protection devices that are designed to prevent exposure to blood or other body fluids for those individuals engaged in emergency medical patient care and similar operations. NFPA 1999 specifies a series of requirements for each type of protective clothing. Garments can be full-body clothing or clothing items such as coveralls, aprons, or sleeve protectors. For the intended areas of body protection, the garment must allow no penetration of virus, offer "liquidtight" integrity, and have limited physical durability and hazard resistance. Gloves must allow no penetration of virus, offer "liquidtight" integrity, and meet other requirements for tear resistance, puncture resistance, heat aging, alcohol resistance, sizing, and dexterity. Face protection devices can be masks, hoods, visors, safety glasses, or goggles. Any combination of items can be used to provide protection to the wearer's face, principally the eyes, nose, and mouth. For the intended areas of face protection, these devices must allow no penetration of virus, offer "liquidtight" integrity, and provide adequate visibility for those portions of the device covering the wearer's eyes.

A.9.4.2 In order to avoid all potential exposure to infectious diseases, it is important that all members use medical gloves when providing patient care. All members who could come in contact with the patient should use medical gloves.

A.9.6.1.1 This should be done in accordance with Chapter 5 of NFPA 475.

A.9.6.2 Table A.9.6.2 provides a hierarchy of protection for each of the major categories of protection.

A.9.7.1 Fire departments that provide both wildland and structural firefighting services should establish guidelines for members on which ensemble to wear for a given firefighting or other emergency incident.

A.9.7.3 Fire shelters are no longer addressed in NFPA 1977. Specifications for fire shelters are provided in USDA Forest Service Specification 5100-606, *Shelter, Fire*.

A.9.7.4 Wildfires can last hours, days, or weeks, depending on their severity. As a result, firefighters can be required to work long shifts (i.e., 12 to 24 hours or more) over consecutive days or weeks, while performing a range of physically demanding tasks. Many of these tasks involve the presence of a live fire in wildfire suppression/urban interface firefighting, and some are performed away from the fire such as during preparation for, or "mopping up" after, a fire event. In addition to the physical demand imposed by firefighting, firefighters frequently perform their duties under a range of extreme environmental conditions.

Given this combination of long hours, extreme environmental conditions, and physically demanding work, it is important for policy makers in the fire service to understand the impact of performing consecutive work shifts in the heat. If firefighters cannot sustain their work performance over multiple work days, it can have negative implications for the fire suppression effort. Slowed productivity can result in an increase in the time taken to control a wildfire, which could ultimately place firefighters, civilians, and civilians' property at undue risk. Most importantly, understanding the physiological and subjective responses to such work is important for fire service in preserving the health and safety of their personnel. This is particularly important, since it appears that firefighters might have a propensity toward baseline dehydration. There is a strong imperative to encourage proper hydration before being on duty at an incident. Firefighters also need to be able to better assess and maintain a safe hydration level while on duty, particularly during an extended attack or extreme heat days. This is especially important given the relationship between hydration levels, core temperature, and heart rate. As a person becomes dehydrated, their blood becomes thicker and causes the heart to work harder. This can lead to elevated maximum heart rate, core temperatures, and a myriad of other issues that can significantly diminish a firefighter's health and safety.

We know from studies that one third of firefighters routinely arrive for duty in some state of dehydration. The following strategies can be used to maintain proper hydration:

(1) Before work — Drink 1 to 2 cups of juice or water. Eat small amounts of salty foods to stimulate thirst.
(2) During work — Take several fluid breaks per hour, drinking at least 1 quart of fluid during each hour of hard work in the heat. Firefighters should drink as much as possible during their lunch break. Water is the body's greatest need during work in the heat. Studies show that workers drink more when lightly flavored beverages are available. Providing a portion of fluid replacement with sports drinks will help firefighters retain fluids and maintain energy and electrolyte levels. The carbohydrate in

Table A.9.6.2 Major Categories of Protection

Level	Chemical Vapors	Chemical Liquids	Biological Liquids	Biological Aerosols	Radiological Particles
Highest	NFPA 1991	NFPA 1991	NFPA 1991	NFPA 1991	NFPA 1991
	NFPA 1994 C1	NFPA 1994 C1	NFPA 1994 C1	NFPA 1994 C1	NFPA 1994 C1
	NFPA 1994 C2	NFPA 1994 C2	NFPA 1994 C2	NFPA 1994 C2	NFPA 1994 C2
	NFPA 1994 C3	NFPA 1992	NFPA 1992	NFPA 1992	NFPA 1992
		NFPA 1994 C3	NFPA 1999 MU	NFPA 1999 MU	NFPA 1999 MU
Lowest			NFPA 1994 C3	NFPA 1994 C3	NFPA 1994 C3
			NFPA 1999 SU	NFPA 1994 C4	NFPA 1994 C4

Note: NFPA 1991, 1992, and 1994 have been incorporated in the 2022 edition of NFPA 1990.

sports drinks also helps to maintain immune function and mental performance. The sodium in sports drinks reduces urinary water loss.

(3) After work — Continue drinking to replace lost fluid. The amount of thirst does not indicate the amount of fluids needed for rehydration, so firefighters should drink more than they think they need. Rehydration is enhanced when fluids or foods contain sodium and potassium, electrolytes that replace those lost through sweat. Sodium also stimulates thirst. Including some protein can help muscles recover from hard work.

Firefighters can burn as many calories as triathletes; therefore, proper nutrition is vital for mental acuity, immune functions, and energy.

Shift food, which is intermittent feeding throughout the day, maintains blood glucose and work output. Proteins such as meat, milk, and beans, and fats in nuts, meat, and dairy are essential to building muscle. In addition, adequate carbohydrate intake is critical to maintain energy and also helps to improve decision making.

According to NFPA 1584, the following products should be avoided:

(1) Caffeine — It acts as a diuretic and causes a loss of fluids.
(2) Energy drinks — They contain high amounts of caffeine and sugar.
(3) Tobacco
(4) Alcohol
(5) Creatine and creatine supplement

A.9.8.4.1 NIOSH provides nine classes of particulate filters (three classes of filter efficiency — 95 percent, 99 percent, and 99.97 percent), each with three categories of resistance to filter efficiency degradation (N, R, and P). Additionally, performance against toxic industrial gases, vapors, and certain CBRN agents are also specified by NIOSH.

A.9.8.4.2 APRs and PAPRs do not supply oxygen. Use should be limited to known contaminants and known exposure levels and used only in adequately ventilated areas. APRs and PAPRs cannot be used when concentrations of contaminants are unknown, or when appropriate exposure limit is not known, or when cartridge or filter service life is unknown.

A.9.9 Fire department personnel involved in surface water operations should be protected against potential hazards. These hazards include exposure to physical, environmental, thermal, and certain common chemical and biological hazards.

NFPA 1952 covers full body suits, helmets, gloves, footwear, and personal flotation devices for those individuals engaged in surface water operations and similar operations. NFPA 1952 specifies a series of requirements for each type of protective clothing. Requirements are established for dry suit environments, wet suit environments, and ice suit environments.

A.9.11.1.1 Selection of respiratory protection devices is an important function, particularly where resources are limited and respirators have to be used for different applications with different equipment. Urban search and rescue (USAR), CBRN, confined space, hazardous materials, and other operations can require different filter elements, SCBA breathing air cylinders, umbilical connections, and features that are easier to ascertain and coordinate with a selection stage.

A.9.11.4 At least one additional reserve SCBA should be available at the incident scene for each 10 SCBA in use, to provide for replacement if a failure occurs.

A.9.11.7 Hazardous atmospheres requiring SCBA can be found in, but are not limited to, the following operations: structural firefighting, aircraft firefighting, shipboard firefighting, overhaul, confined space rescue, and any incident involving hazardous materials.

A.9.11.8 The required use of SCBA means that the user should have the facepiece in place, breathing air from the SCBA only. Wearing 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.9.11.9 A NIOSH-approved full-face air-purifying respirator (APR) is permissible when used in compliance with Chapter 14.

A.9.13.1.3 The use of long-duration SCBA should be restricted to operations in tunnels and underground structures, on board ships, and in other situations where the need for this capability is demonstrated. Weight and stress reduction should be an objective in the acquisition of new SCBA and when upgrading currently used SCBA. Weight and other stress factors are major contributions to firefighter fatigue and injury, and SCBA should be chosen accordingly.

A.9.13.3.3 Because of the cumulative hazards associated with the repeated use of filter canisters and cartridges under emergency response conditions, canisters and cartridges that have been placed in service should be removed, replaced, and discarded after training, regardless of exposure time.

A.9.13.3.4 When an NFPA 1984–compliant respirator is not available, the AHJ should conduct a risk analysis to determine the appropriate NIOSH-approved respirator for use during wildland firefighting operations in the environment where it will be used.

A.9.14.1 In quantitative fit testing, the testing machine provides a numerical value of each test exercise and then a computed fit factor that can be used as a benchmark for future fit testing the following year. The test subject must obtain at least a fit factor of 500 for the person to pass the fit test with the full facepiece. The strip chart that the test machine provides becomes the written record, and a computer-generated record can be done at the same time. There is little judgment required by the operator of the fit test other than to make sure the test subject and the procedures are followed to the letter.

Proper respiratory protection programs include provisions for conducting a respirator fit testing to ensure that the respirator fits the user properly. APRs reduce the user's exposure by varying degrees, depending on the type of respirator used. An effective face-to-facepiece seal is extremely important when using respiratory protection SCBA. Even a minor leakage can allow contaminants to enter the facepiece, even with positive-pressure respiratory protection 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 interference by any protective clothing or other equipment. In those instances where members cannot meet the facepiece seal requirement with equipment currently used by the AHJ, individually fitted facepieces should be provided.

Fit testing is a procedure used to evaluate how well a given respirator fits a given person by assessing leakage around the face seal. Without fit testing, persons unknowingly can have poor face seals, allowing contaminants to leak around the mask and be inhaled. Poor face seals are due to certain facial characteristics (facial size, beards, large sideburns, scars, or other facial uniqueness) that prevent direct contact between the skin and the sealing surface of the respirator and result in leakage or inadequate respiratory protection.

Improper use of a respirator or improper fit testing of any respirator can lead to a false sense of security and possibly result in injury or death to the user.

A.9.14.5 A protection factor of at least 10,000 in the positive-pressure mode is recommended for positive-pressure SCBA. The quantitative test can be used to determine which facepieces fit an individual well and thus aids in selecting the facepiece that best conserves the amount of air in the cylinder.

A.9.14.6 WARNING: If a facepiece from one manufacturer is used on a unit from another manufacturer, the NIOSH approval will be voided.

A.9.15.2.1 The following is an excerpt from 29 CFR 1910.134(g), "Respiratory Protection":

"(g) *Use of respirators.* This paragraph requires employers to establish and implement procedures for the proper use of respirators. These requirements include prohibiting conditions that may result in facepiece seal leakage, preventing employees from removing respirators in hazardous environments, taking actions to ensure continued effective respirator operation throughout the work shift, and establishing procedures for the use of respirators in IDLH atmospheres or in interior structural firefighting situations.

(1) *Facepiece seal protection.* (i) The employer shall not permit respirators with tight-fitting facepieces to be worn by employees who have:

(A) Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or

(B) Any condition that interferes with the face-to-facepiece seal or valve function."

This prohibition applies to any negative- or positive-pressure personal respiratory protection device of a design relying on the principle of forming a face seal to perform at maximum effectiveness. A beard growing on the face at points where the seal with the respirator is to occur is a condition that has been shown to prevent a good face seal. This is so regardless of what fit test measurement can be obtained. However, if the beard is styled so no hair underlies the points where the SCBA facepiece is designed to seal with the face, then the employer may use the SCBA to protect the employee.

A.9.15.4 These restrictions should apply regardless of the specific fitting test measurement that can be obtained under test conditions.

A.9.15.5 The user should be able to demonstrate the successful use of an SCBA with contact lenses in a nonhazardous training environment before being allowed to use them in an incident. Successful long-term soft contact lens use should be measured by the ability to wear soft contact lenses for at least 6 months without any problems.

A.9.16.1 Given the considerable amount of stored energy inside an SCBA cylinder, cylinders should always be filled using manufacturers' recommendations and following any existing NIOSH, CGA, or other regulatory agency guidelines.

Because of the failure during refilling of 11 cylinders using aluminum alloy 6351-T6, SCBA cylinders made of this alloy should be diligently inspected, both externally and internally, by properly trained inspectors at least annually.

Most of these failed cylinders had not been maintained properly. Some were being used beyond their DOT-defined hydrostatic test period. Some had not been retrofitted with a special neck-ring that the manufacturer had recommended to reduce the possibility of failure.

For additional information, refer to the United States Department of Transportation (DOT) Research and Special Programs Administration (RSPA) Safety Advisory Notice of 1994 (Federal Register Vol. 59, July 26, 1994), DOT Safety Advisory Notice of 1999 (Federal Register Vol. 64, October 18, 1999), and the NIOSH Respirator User Notice of December 7, 1999.

Several of the ruptured cylinders were made using aluminum alloy 6351-T6. This alloy has been identified as being susceptible to sustained load cracking (SLC) in the neck and shoulder area of the cylinder. The NIOSH Respirator User Notice of December 7, 1999, states: "It is important to note that only a small percentage of cylinders made from aluminum alloy 6351-T6 have actually been found to exhibit sustained load cracking. Moreover, out of several million cylinders manufactured from this alloy by several companies, NIOSH and the US Department of Transportation (DOT) are aware of only 12 ruptures within the United States. Eleven of the 12 ruptures occurred during refilling, six of these 12 ruptures involved SCBA cylinders. Forensic analysis has determined that most of these cylinders failed due to SLC failure. However, in some cases, evidence of other factors such as external mechanical damage was also present."

Changes have now been made in materials specification and design of cylinders. Since 1988, manufacturers have been using aluminum alloy 6061-T6 in the manufacture of all of their cylinders and cylinder liners. Alloy 6061-T6 has become the "standard of the industry" because it is not susceptible to sustained load cracking.

The failed cylinders belong to a relatively small population of a particular type of cylinder, and there has been no occurrence of cylinder failure during filling of any other type of SCBA cylinders. Full-wrapped composite cylinders, which are

predominantly being purchased by the fire service at this time, have been used since 1988 without failure during refilling. There is, therefore, reason to believe that these other types of SCBA cylinders can continue to be used in the fire service without risk of failure during filling.

A.9.16.6 To facilitate this, it is recommended that industry develop an inexpensive, lightweight chamber, or other means, to provide protection at the fire scene during routine cylinder filling. There is no current commonly accepted standard or specifications for protective enclosures in which to fill SCBA cylinders. Until such a standard is defined, such equipment should comply with the standards defined for fragmentation tanks in NFPA 1900.

A number of SCBA manufacturers have developed systems to quickly fill cylinders. They enable cylinders to be filled while the user is wearing the SCBA. Even though some of these systems have been in use without incident for many years, it is felt that firefighter and support personnel safety are paramount. Chapters 6 through 16 of this standard therefore recommend that personnel be protected when routinely refilling SCBA cylinders.

Until a commonly accepted standard for providing protection during routine refilling of cylinders is defined, the AHJ should determine how best to provide protection for its personnel during routine cylinder filling.

Without a commonly accepted standard defining a concise method of protecting personnel during cylinder refilling, the AHJ can choose which method best applies to its personnel. Such protection can consist of refilling cylinders in an enclosure considered acceptable to the AHJ. The protection can consist of using a refill system with a safe record of operation, with no experience of failures or damage to cylinders, supported by sufficient data, or it can consist of an alternate practice considered as safe by the AHJ.

A.9.16.7 The possibility exists for catastrophic failure of SCBA cylinders during refilling.

A.9.16.12 Table A.9.16.12 shows the approximate pressures associated with the 21.18 ft^3 (600 L) minimums when exiting procedures should have already begun to take place.

A.9.17.1 Technology has provided the integration of PASS devices with SCBA. When the SCBA unit is activated to an operational mode, the PASS device is activated. Fire departments are encouraged to utilize this technology. The use of PASS devices should be coupled with a solid incident management system, a personnel accountability system, and adequate communications to properly ensure the safety of firefighters.

Table A.9.16.12 Pressure Associated with 21.18 ft^3 (600 L) Minimum Exit Volume

	2216 psi	3000 psi	4500 psi
30 minute/42.37 ft^3 (1200 L)	1100 psi	NA	2250 psi
30 minute/60.03 ft^3 (1700 L)	NA	1050 psi	NA
45 minute/64 ft^3 (1800 L)	750 psi	NA	1500 psi
60 minute/85 ft^3 (2400 L)	550 psi	NA	1100 psi

NA: Not applicable.

A.9.17.2 The mandatory use and operation of a PASS by firefighters involved in rescue, fire suppression, or other hazardous duty is imperative for their safety. The primary intent of this device is to serve as an audible device to warn fellow firefighters in the event a firefighter becomes incapacitated or needs assistance.

Past firefighter fatality investigation reports document the critical need to wear and operate PASS devices when firefighters operate in hazardous areas. Investigation results show that firefighters most often failed to activate the PASS unit prior to entering a hazardous area. Training and operational procedures are imperative to ensure activation of the PASS whenever PASS devices are used.

A.9.18.3 Life safety rope can be significantly weakened by abrasion, misuse, contamination, wear, and stresses approaching its breaking strength, particularly impact loading. Because there is no approved method to service test a rope without compromising its strength, rope rescue and training operations should be carefully observed and monitored for conditions that could cause immediate failure or result in undetectable damage to the rope. If a rope has been used in a situation that could not be supervised or where potential damage could have occurred, it should be removed from service and destroyed.

It is important that ropes be inspected for signs of wear by qualified individuals after each use. If indications of wear or damage are noted, or if the rope has been stressed in excess of the manufacturers' recommendations or has been impact loaded, it should be destroyed.

The destruction of the rope means that it should be removed from service and altered in such a manner that it could not be mistakenly used as a life safety rope. This alteration could include disposal or removal of identifying labels and attachments and cutting the rope into short lengths that could be used for utility purposes.

The assignment of disposable life safety ropes to members or to vehicles has proven to be an effective system to manage ropes that are provided for emergency use and are used infrequently. Special rescue teams, which train frequently and use large quantities of rope, should include members who are qualified to manage and evaluate the condition of their ropes and determine the limitations upon their reuse.

A.9.19.1.1 Some examples of primary eye protection are goggles and safety glasses, as they provide specific and substantial eye protection against penetration and impact. Helmet faceshields are not primary eye protection, as they do not provide eye protection and should not be relied upon for eye protection. Faceshields should be used to protect the face as secondary protection to primary eye protection. Faceshields currently are often used incorrectly as the only form of eye protection. It is evident that when faceshields are exposed to ultraviolet degradation, abrasion, and products of combustion, they become scratched, cloudy, opaque, and can be rendered unserviceable in a very short period of time. In many instances, the faceshield is lifted so that the wearer can see what he is doing, leaving the eyes unprotected and exposed to the dangers of flying debris. Goggles and other primary eye devices are more easily protected from damage and also provide specific protection for the wearer's eyes. There are numerous products on the market to protect the goggles from damage when stored on the helmet. Users desiring to keep goggles or eye protection stored on top of the helmets should consider

one of these devices. The SCBA facepiece can provide both primary eye protection and full-face protection.

A.9.20.1 The use of PPE 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 firefighters 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 could limit the use of hearing protection by drivers.

The fire apparatus standards require the noise level at any seated position to be a maximum of 90 dBA when measured as specified in the standard, without any warning devices in operation, as the vehicle proceeds at a speed of 45 mph (72 km/hr) on a level, hard, smooth surface road. However, it is recommended that the specifications for new fire apparatus provide maximum sound requirements that would allow members to ride in those vehicles without using 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 (80 km/hr). All windows should be closed, and the noise level should be measured in each passenger area.

A.9.20.2 When operating in situations where other protective clothing and equipment are necessary, such as in structural firefighting, 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 nonemergency 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.9.20.3 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 exhibiting 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, "Occupational Noise Exposure," 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 long-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.

For more information on fire department hearing conservation programs, consult the US Fire Administration publication FA-118, *Fire and Emergency Service Hearing Conservation Program Manual*.

A.10.1.1 The National Wildfire Coordinating Group (NWCG) is an operational group that coordinates programs of the participating wildland fire management agencies and is comprised of representatives of the US Forest Service, four Department of Interior agencies (Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and the US Fish and Wildlife Service), the Intertribal Timber Council, 50 state forestry agencies and Puerto Rico (through the National Association of State Foresters), the US Fire Administration, and the Federal Emergency Management Agency (FEMA).

The NWCG has several sources of information regarding wildland firefighting operations, safety, and training, including the NWCG-NFES No. 1077, *NWCG Incident Response Pocket Guide (RPG);* NWCG-PMS 410-1, *Fireline Handbook*; and NWCG-PMS 310-1, *NWCG Standard for Wildland Position Qualifications*. For a complete list of NWCG publications, see https://www.nwcg.gov/.

A.10.1.5 The incident commander should automatically integrate firefighter safety and survival into the regular command functions. When this integration occurs, the incident commander promotes firefighter welfare by performing the standard job of command. Under fire conditions, the incident commander is at an extreme disadvantage to perform any additional tasks. The safety plan for the incident commander has to be the regular command plan.

Due to the high number of firefighter injuries and deaths attributable to lack of or poor implementation of the safety function on the incident scene, the incident commander should recognize the importance of integrating the safety function into the incident command structure as described in Chapters 17 through 21 of this standard.

A.10.1.7 Due to the high number of firefighter injuries and deaths attributable to lack of or poor implementation of incident management, incident managers should be familiar with the use of incident management teams or incident command team as described in Chapters 17 through 21 of this standard.

A.10.1.8 The following explains the responsibilities of the incident commander:

(1) The incident commander should always integrate firefighter health and safety considerations into the command process. This integration ensures that safety will always be considered and will not be reserved for

unusual or high-risk situations when the incident commander is under a high degree of stress. An incident action plan that addresses firefighter safety should be a routine function of command.

(2) Early evaluation enables the incident commander to consider current conditions in a standard manner and then predict the sequence of events that will follow. The consideration of firefighter safety should be incorporated into this evaluation and forecasting.

(3) Effective communications are essential to ensure that the incident commander is able to receive and transmit information, obtain reports to maintain an awareness of the situation, and communicate with all component parts of the incident organization to provide effective supervision and controls.

(4) Strategic decisions establish the basic positioning of resources and the types of functions they will be assigned to perform at the scene of a fire or emergency incident. The level of risk to which members are exposed is driven by the strategy; offensive strategy places members in interior positions where they are likely to have direct contact with the fire, while defensive strategy removes members from interior positions and high-risk activities. The attack plan is based on the overall strategy and drives the tactical assignments that are given to individual or groups of companies/crews and the specific functions they are expected to perform. Risk identification, evaluation, and management concepts should be incorporated into each stage of the command process.

(5) Tactical level management component people are command agents and are able to both monitor companies/crews at the actual location where the work is being done (geographic) and to provide the necessary support (functional). The incident commander uses a tactical-level management unit as off-site (from the command post) operational/communications/safety managers-supervisors. The incident commander uses the incident organization along with communications to stay connected. Some incident management systems identify tactical-level management components such as a *division* or a *group* for a functional position within the system, whereas other systems use the term *sectors* for either geographical or functional areas. As incidents escalate, the incident management system should be utilized to maintain an effective span of control ratio of not greater than 1 to 7 with an optimum ratio of 1 to 5.

(6) The incident commander should routinely evaluate and re-evaluate conditions and reports of progress or lack of progress in reaching objectives. This process will allow the incident commander to determine if the strategy and attack plans should be continued or revised. The failure to revise an inappropriate or outdated attack plan is likely to result in an elevated risk of death or injury to firefighters.

(7) Effective command and control should be maintained from the beginning to the end of operations, particularly if command is transferred. Any lapse in the continuity of command and the transfer of information increases the risk to firefighters.

A.10.2.3 The intent of the use of "clear text" for radio communications is to reduce confusion at incidents, particularly where multiple agencies are operating at the same incident.

A.10.2.4 Examples of emergency conditions could be "evacuate the building/area," "wind shift from the north to south," "change from offensive to defensive operations."

Examples of situations where the term "mayday" should be used include a lost or missing member, an SCBA malfunction or loss of air, a member seriously injured or incapacitated, a member trapped or entangled, or any life-threatening situation that cannot be immediately resolved.

When a firefighter experiences a life-threatening situation, he or she must quickly and efficiently be able to take the steps necessary to survive and alert rescuers. This is the time when an individual firefighter will be tested on his or her knowledge of self-survival techniques. Paramount to surviving such an experience is being able to communicate the emergency to rescuers. The terms used to communicate these needs must be chosen carefully. The terms used must be easily understood over the radio in times when operational noise is high. The terms used must also be recognizable as an emergency call for assistance by those on the incident. All persons, regardless of language accent, must easily be able to annunciate the terms used. And finally, the terms used must be short with two syllables maximum to allow for a simple single inflexion of the voice to recognize the term.

"Mayday" satisfies all of the above demands for a term that can be used to communicate a firefighter's need for immediate assistance. "Mayday" is approved for fire service use by the National Search and Rescue Committee and is currently being used by most fire departments in the United States. Most importantly, "mayday" is easily remembered and understood over the radio when operational noise challenges radio communications.

The concern over "mayday" causing confusion with aeronautical and nautical emergencies is unfounded. In April 2002, Dr. Burton A. Clark, EFO, CFO, Management Science Program chair at the National Fire Academy, and operations chief for DHS/FEMA during national disasters wrote to Rear Admiral Ken Venuto (USCG), chairman of the National Search and Rescue Committee, requesting clarification on the use of "mayday." In August 2002, Captain Steve Sawyer (USCG) returned a letter to Dr. Clark stating, "Your recent letter inquired about use by fire departments of the term "mayday" over ground fire radios when the life of a firefighter is in danger. Use of "mayday" under such circumstances is permissible under US law and regulations. The radio frequencies concerned are different from the aeronautical and maritime frequencies, so use of the term should not cause confusion. Further, any effective means of calling for help is authorized under both national and international radio regulations for true distress situations. Within the letter Captain Sawyer gives further insight on the appropriate use of "mayday." On page 2 of the letter it states, "'Mayday' is recognized nationally and internationally as a signal meaning life is in danger and immediate assistance is required, although federal regulations only mention its use for ship aircraft. The above guidance is based on review of the regulations and consultation with experts of the Coast Guard, FCC, International Civil Aviation Organization, and others. We trust that this explanation will help not only for your local training and operations; you may also find it useful seeking to update relevant guidance in NFPA or other standards, as appropriate."

In addition to "emergency traffic" and "mayday," the fire department can use additional signals such as an air horn

signal for members to evacuate as part of their standard operating procedures. Some fire departments have developed an evacuation signal that consists of repeated short blasts of apparatus air horns. The sequence of air horn blasts should not exceed 10 seconds in length, followed by a 10-second period of silence, and it is done three times (a total air horn evacuation signal including periods of silence lasts 50 seconds). When this evacuation signal is used, the incident commander should designate specific apparatus to sound the evacuation signal using air horns. The apparatus used should not be in close proximity to the command post, if possible, thus reducing the chance of missing any radio messages.

During firefighter rescue operations, the incident commander should consider implementing the following:

(1) Requesting additional resources
(2) Including a medical component
(3) Utilizing staging for resources
(4) Committing the RIC team from standby mode to deployment
(5) Changing from strategic plan to a high-priority rescue operation
(6) Initiating a PAR (personnel accountability report)
(7) Withdrawing companies from the affected area
(8) Assigning a rescue officer
(9) Assigning a safety officer
(10) Assigning a backup rapid intervention crew/company
(11) Assigning an advanced life support (ALS) or basic life support (BLS) company
(12) Requesting additional command level officers
(13) Requesting specialized equipment
(14) Ensuring that dispatch is monitoring all radio channels
(15) Opening appropriate doors to facilitate egress and access
(16) Requesting additional vertical/horizontal ventilation
(17) Providing lighting at doorways, especially at points of entry

A.10.2.5 Some fire departments can also wish to be provided with reports of elapsed time-from-dispatch. This method can be more appropriate for fire departments with long travel times where significant incident progress could have occurred prior to the first unit arrival.

A.10.2.5.1 Common procedure is for the dispatch center to announce "incident clock is 10 minutes," "incident clock is 20 minutes," "incident clock is 30 minutes," and so forth.

A.10.3.1 The incident commander has the ultimate responsibility for the safety and survival of all fire department members operating at an incident. Crew Resource Management (CRM) provides a basis for improving the following:

(1) Communication
(2) Situational awareness
(3) Decision-making
(4) Teamwork
(5) Workload management
(6) Error management

A.10.4.1 The incident commander has the 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. Risk management provides a basis for the following:

(1) Standard evaluation of the situation
(2) Strategic decision making
(3) Tactical planning
(4) Plan evaluation and revision
(5) Operational command and control

A.10.4.2.1 The risk to fire department members is the most important factor considered by the incident commander in determining the strategy that will be employed in each situation. The management of risk levels involves all of the following factors:

(1) Routine evaluation of risk in all situations
(2) Well-defined strategic options
(3) Standard operating procedures
(4) Effective training
(5) Full protective clothing ensemble and equipment
(6) Effective incident management and communications
(7) Safety procedures and safety officers
(8) Backup crews for rapid intervention
(9) Adequate resources
(10) Rest and rehabilitation
(11) Regular evaluation of changing conditions
(12) Experience based on previous incidents and critiques

When considering risk management, fire departments should consider the following Rules of Engagement after evaluating the survival profile of any victims in the involved compartment:

(1) We will risk our lives a lot, in a calculated manner, to save SAVABLE LIVES.
(2) We will risk our lives a LITTLE, in a calculated manner, to save SAVABLE property.
(3) We WILL NOT risk our lives at all for a building or lives that are already lost.

A.10.4.3 The acceptable level of risk is directly related to the potential to save lives or property. Where there is no potential to save lives, the risk to fire department members should be evaluated in proportion to the ability to save property of value. When there is no ability to save lives or property, there is no justification to expose fire department members to any avoidable risk, and defensive fire suppression operations are the appropriate strategy.

A.10.4.5 A safety officer should be established at all major incidents and at any high-risk incidents. The safety officer should be assigned to operate under the incident commander. Depending on the specific situation, this assignment could require one or more members. If the fire department's safety officer is not available or does not have the expertise necessary for the incident, the incident commander should assign one or more members that have the expertise to assume this responsibility. All members should be familiar with the basic duties and responsibilities of a safety officer.

A.10.4.7 Atropine auto-injectors are used in the military and have been purchased by many fire departments. Fire departments that have auto-injectors available for their members need to provide training on the use of the auto-injector.

A.10.5.1 A standard system to account for the identity and assignment of each member could be relatively simple when all members arrive as assigned crews on fire apparatus. The identity of each crew member should at least be recorded in a standard manner on the vehicle, and each company officer is responsible for those members. In fire departments where members arrive in their own vehicles or assemble at the scene,

a system is required to record 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.10.5.10 The personnel accountability system is a method of maintaining constant awareness of the identities and location of all personnel involved in emergency operations. The personnel accountability system philosophy starts with the incident command system principles of company unity and unity of command. These duties can be fulfilled initially maintaining company accountability by documenting the situation status and resource status on the tactical worksheet. Other methods include command boards, apparatus riding lists, company personnel boards, and electronic bar-coding systems. These components can be used in conjunction with one another to facilitate the tracking of personnel by both location and function. The components of the personnel accountability system should be modular and expand with the size and complexity of the incident.

At major incidents, this function should be separate from the role of the incident commander. The function of personnel accountability should be assigned to an accountability officer (resource status and situation status) who is responsible for maintaining the status of all assigned resources at an incident. As the incident escalates, this function would be placed under the planning section.

A.10.5.11 These accountability supervisors should work with the incident commander and the division or group supervisor to assist in the ongoing tracking and accountability of members.

A.10.6.1.3 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 firefighter death or injury due to understaffing. While members can be assigned to and arrive at the scene of an incident in many different ways, it is strongly recommended that interior firefighting operations not be conducted without an adequate number of qualified firefighters operating in companies under the supervision of company officers.

It is recommended that a minimum acceptable fire company staffing level for companies responding to any type of fire should be four members responding on or arriving with each engine and each ladder company. The minimum acceptable staffing level for companies responding in high-risk areas should be five members responding or arriving with each engine company and six members responding or arriving with each ladder company. These recommendations are based on experience derived from actual fires and in-depth fire simulations and are the result of critical and objective evaluation of 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 safety and health of firefighters. Potentially fatal work environments can be created rapidly in many fire situations. Proper training and skills can make a difference in the need for additional personnel and in reducing the exposure to safety and health risks for firefighters where a situation exceeds their capabilities.

A.10.6.4 For additional information, see 29 CFR 1910.134, "Respiratory Protection."

A.10.6.5 All members operating in the IDLH should use a hose line or a search rope as a point of reference for exit.

A.10.6.8 Studies have shown that the severity of incidents involving ARFF can rapidly escalate to catastrophic proportions. If firefighting and rescue operations are to be effective, fully assembled ARFF companies should be on-scene within the time requirements as specified in NFPA 403, as incorporated in the 2024 edition of NFPA 460. Experience has shown that it is extremely difficult to assemble personnel who are responding from separate locations for individual ARFF companies within these time constraints. It is strongly recommended that the minimum ARFF company staffing level be three on-duty members responding on or with each ARFF vehicle.

It is also recommended that structural fire apparatus responding in support of ARFF operations should be staffed in accordance with A.10.6.1.3. *(See also NFPA 1710.)*

A.10.6.9 If advanced life support personnel are available, this level of service would be preferred. Basic life support is the minimum acceptable level.

A.10.6.14 Consideration for rescue of members working over, in, and around water should be addressed by the incident commander and safety officer within the incident action plan.

A.10.6.15.1 Examples include protective shields, mechanical/human barriers, or alerting techniques that are distinguishable and effective under the conditions.

A.10.6.15.5 It is recommended, based on known voltage, to stay away from such energized sources as described in 10.6.15.1 per the following distances in Table A.10.6.15.5.

A.10.6.15.9.1 Examples of procedures for isolating personnel from energized equipment include protective shields, mechanical/human barriers, and alerting techniques that are distinguishable and effective under the conditions.

A.10.6.15.9.5 Marking and labeling around the main service panels might assist in locating shutoffs. Attempts to secure the main electrical service and PV System Disconnect will lower the hazard, but personnel should consider the rooftop array as still energized. Systems equipped with module-level controls provide a higher degree of safety and will shut down each module and render it safe/de-energized. Contacting qualified PV installers might be required to safely shut down a damaged system.

Table A.10.6.15.5 Distance from Energized Sources

	Distance	
Voltage	**ft**	**m**
0–50,000	10	3
50,000–200,000	15	4.5
200,000–500,000	20	6.1
500,000–750,000	35	10.7
750,000–1,000,000	45	13.7

Sources: 29 CFR 1926.1407-1411, "Power Line Safety"; ASME B30.5a, *Standard on Mobile and Locomotive Cranes.*

A.10.7.4 Figure A.10.7.4 shows the concept of emergency incident hazard control zones. The hot zone is the area presenting the greatest risks to members and will often be classified as an IDLH atmosphere. The hot zone can include no-entry zones. Examples of no-entry zones could be holes in floors, explosive devices, crime scenes, and so forth.

The warm zone is a limited-access area for members directly aiding or in support of operations in the hot zone. Significant risk of human injury (respiratory, exposures, etc.) can still exist in the warm zone.

The cold zone establishes the public exclusion or clean zone. There are minimal risks for human injury and/or exposure in this zone.

It might not always be possible or practical to mark the emergency incident hazard control zones with colored tape, signage, or other appropriate means, depending on the nature or location of the incident, available resources, and so forth. If possible, these emergency incident hazard control zones should be clearly marked. Other means of marking emergency incident hazard control zones can include flashing beacons, streets, fences, and so forth. It is essential that the perimeters of these zones are communicated to all members at the incident and that they are aware of these zones and their implications.

When colored tape is being used to mark control zones, it is recommended that the following tape colors be used:

(1) No-entry zone: red/white chevron
(2) Hot zone: red
(3) Warm zone: yellow
(4) Cold zone: green

A.10.7.4.1 A hot zone can include the area where exterior fire control activities are taking place. A hot zone can also include a no-entry zone (marked with red and white chevron tape or other means). No personnel should enter the no-entry zone due to imminent hazard(s) or the need to protect evidence. Examples of no-entry zones could be holes in floors, explosive devices, crime scenes, and so forth. Examples of the PPE are SCBA, flash hood, and so forth.

A.10.7.4.1.1 The hot zone is an area with greater potential for risk of injury or exposure. Members entering the hot zone without an assigned task are placing themselves at greater risk for no reason. In addition, they can be increasing the risk of others operating within this zone by creating some confusion.

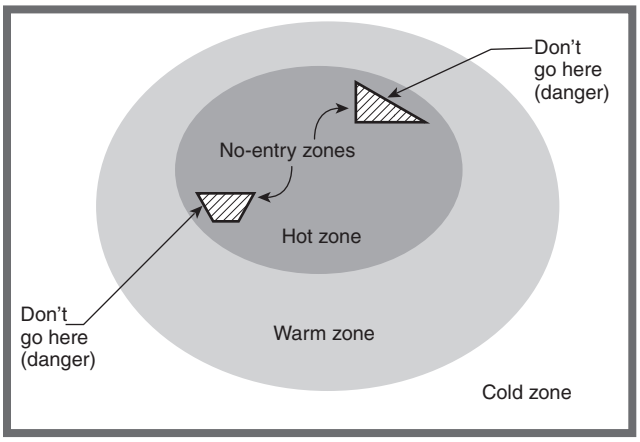

FIGURE A.10.7.4 Example of Control Zones.

A.10.7.4.2 Examples of significant risk of human injury include respiratory and exposures.

A.10.7.4.2.1 The warm zone is the portion of the emergency scene where the contaminants might have been transported by the firefighters as they leave the hot zone with contamination. In many respects, the risk to responders is equal to that in the hot zone, and the need to wear PPE continues. Until the contaminants have been removed from the PPE or the contaminated PPE removed from the firefighters, the precautions used in the hot zone must continue to be used.

A.10.7.4.4.1 Any emergency incident hazard control zone can include a no-entry zone. In the event that personnel are exposed to a no-entry zone, appropriate contamination reduction strategies for the hazards encountered should be utilized.

A.10.7.4.4.2 The intent of arranging three horizontal strands of yellow barrier tape spaced 18 to 24 in. (460 to 610 mm) apart and securely fixed to supports is to create a "picket fence" visual appearance to better warn members of the no-entry zone.

A.10.7.4.4.3 Examples of ways to illuminate no-entry zones include orange cones with flashing strobe lights, glow sticks securely attached to barrier tape, and auxiliary scene lighting devices (e.g., box lights, portable flood lights).

A.10.7.4.4.4.2 One and a half (1.5) times the height of the building is considered the minimum; however, unreinforced masonry construction (URM) can represent hazards to firefighters at distances greater than 1.5 times the height of the building.

A.10.8.2 The assembling of four members for the initial fire attack can be accomplished in many ways. In their response plan, the fire department should determine the manner in which they plan to assemble members. The four members assembled for initial firefighting operations can include an officer, chief officer, or any combination of members arriving at the incident. For career departments, the four members should arrive in tandem if on separate units.

If members are going to initiate actions that would involve entering a structure because of an imminent life-threatening situation where immediate action can prevent the loss of life or serious injury and four members are not yet on the scene, the members should carefully evaluate the level of risk that they would be exposed to by taking such action. If it is determined that the situation warrants such action, incoming companies should be notified so that they will be prepared to provide necessary support and backup upon arrival.

A.10.8.2.4 The following examples show how a department could deploy a team of four members initially at the scene of a structure fire, regardless of how the team members are assembled:

(1) The team leader and one firefighter could advance a firefighting hose line into the IDLH atmosphere, and one firefighter and the pump operator become the standby members.
(2) The team leader could designate the pump operator to be the incident commander. The team leader and one firefighter enter the IDLH atmosphere, and one fire-

fighter and the pump operator remain outside as the standby members.

(3) Two firefighters could advance the hose line in the IDLH atmosphere, and the team leader and the pump operator remain outside as standby members.

A.10.8.7 The difficulty in rescuing a downed member or member in trouble cannot be overstated. While one crew/company might suffice at a single-family dwelling, the act of rescuing a member who is lost, trapped, or missing will become increasingly difficult at a large commercial building or high-rise building.

The ability to rapidly deploy a rapid intervention crew/company from the command post to an area remote from the location of the command post can adversely affect the successful rescue of a member. Consideration should be given to assigning a RIC to each point of crew entry at a commercial building.

A.10.9.1 Having a preplanned rehabilitation program that is applicable to most incident types is essential for the health and safety of members. The rehabilitation plan should outline an ongoing rehabilitation for simple or short-duration incidents as well as a process to transition into the rehabilitation needs of a large or long-duration incident.

A.10.9.1.1 Rehabilitation operations include work cycles using SCBAs during active firefighting operations and overhaul operations.

A.10.10.1 Fire department members should not enter an environment where there is ongoing violence, or the threat of violence such as persons with weapons, without coordination with law enforcement personnel. This does not necessarily limit the ability of cross-trained fire/law enforcement personnel or specialty trained EMS personnel from entering a violent scene to assist the law enforcement or fire department responders.

A.10.10.3 Such situations include but are not limited to civil disturbances, fights, violent crimes, drug-related situations, family disturbances, deranged individuals, and people interfering with fire department operations.

A.10.10.3.1 The Firefighting Resources of California Organized for Potential Emergency (FIRESCOPE) has developed ICS-701, *Emergency Response to Tactical Law Enforcement Incidents,* which might be useful in developing a standard operating procedure in this area.

A.10.10.5 Incidents that appear routine in nature can, after the arrival of responding crews, turn into a violent or hostile environment. A standard communication phrase, known only by communications personnel and other responders, can warn others to the dangers of the situation without triggering violence or hostilities.

A.11.4 This could be done as shown in the *Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD).*

A.11.4.1 In most cases, the primary traffic threat will be upstream; however, first-arriving responders might find that the primary traffic threat is other than upstream (intersections, on and off ramps, steep grades, etc.).

When resources are available, responders should establish a temporary traffic incident management area (TIMA). A TIMA is defined as an area of a highway where temporary traffic control (TTC) is imposed by authorized officials responding to a road user incident, natural disaster, hazardous material spill, or other unplanned incident. The TIMA extends from the first warning device (such as a sign, light, or cone) to the last TTC device, or to a point where vehicles return to the original lane alignment and are clear of the incident. The *MUTCD*, Chapter 6I contains detailed guidance on the recommended size of a TIMA, depending upon road configuration, vehicle speed, and weather conditions.

A.11.4.2 In accordance with *MUTCD*, the use of emergency-vehicle lighting (such as high-intensity rotating, flashing, oscillating, or strobe lights) is essential, especially in the initial stages of a traffic incident, for the safety of emergency responders and persons involved in the traffic incident, as well as road users approaching the traffic incident. Emergency-vehicle lighting, however, provides warning only and provides no effective traffic control. The use of too many lights at an incident scene can be distracting and can create confusion for approaching road users, especially at night.

A.11.4.5 Warning signs should be placed in accordance with the *MUTCD*, depending upon the severity of the incident and anticipated on-scene time, with the intent of providing early warning to the motoring public so as to provide for proper reaction time to safely traverse the TTC zone created around an emergency scene.

Minor Traffic Incidents. Minor traffic incidents are typically disabled vehicles and minor crashes that result in lane closures of less than 30 minutes. On-scene responders are typically law enforcement and towing companies, and occasionally highway agency service patrol vehicles. [**MUTCD:**6I.04.01]

Diversion of traffic into other lanes is often not needed or is needed only briefly. It is not generally possible or practical to set up a lane closure with traffic control devices for a minor traffic incident. Traffic control is the responsibility of on-scene responders.

Intermediate Traffic Incidents. Intermediate traffic incidents typically affect travel lanes for a time period of 30 minutes to 2 hours, and usually require traffic control on the scene to divert road users past the blockage. Full roadway closures might be needed for short periods during traffic incident clearance to allow traffic incident responders to accomplish their tasks. [**MUTCD:**6I.03.01]

The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies. [**MUTCD:**6I.03.02]

Major Traffic Incidents. Major traffic incidents are typically traffic incidents involving hazardous materials, fatal traffic crashes involving numerous vehicles, and other natural or man-made disasters. These traffic incidents typically involve closing all or part of a roadway facility for a period exceeding 2 hours. [**MUTCD:**6I.02.01]

A road closure can be caused by a traffic incident such as a road user crash that blocks the traveled way. Road users are usually diverted through lane shifts or detoured around the traffic incident and back to the original roadway. A combination of traffic engineering and enforcement preparations is needed to determine the detour route, and to install, maintain or operate, and then to remove the necessary traffic control devices when the detour is terminated. Large trucks are a significant concern in such a detour, especially when detouring

them from a controlled-access roadway onto local or arterial streets. [**MUTCD:**6I.02.03]

During traffic incidents, large trucks might need to follow a route separate from that of automobiles because of bridge, weight, clearance, or geometric restrictions. Also, vehicles carrying hazardous material might need to follow a different route from other vehicles. [**MUTCD:**6I.02.04]

Some traffic incidents such as hazardous material spills might require closure of an entire highway. Through road users must have adequate guidance around the traffic incident. Maintaining good public relations is desirable. The cooperation of the news media in publicizing the existence of, and reasons for, traffic incident management areas and their TTC can be of great assistance in keeping road users and the general public well informed. [**MUTCD:**6I.02.05]

The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies. [**MUTCD:**6I.02.06]

Figure A.11.4.5 shows the different traffic areas while operating at a roadway incident.

Table A.11.4.5 shows the minimum distances used for each area within the operation at a roadway incident.

A.11.4.9 Members who operate on roadway incidents should be provided with garments that ensure proper conspicuity enhancement consistent with the requirements in the *Manual on Uniform Traffic Control Devices for Streets and Highways*.

A.11.4.10 Proper training in traffic control can be obtained from local or state highway departments, law enforcement, and other agencies involved with controlling the roadway traffic. The AHJ should participate in local or regional traffic incident management committees. The fire department should also be familiar with the National Traffic Incident Management Coalition's *National Unified Goal*.

A.12.1.1 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, *NFPA 70*, NFPA *101*, *NFPA 5000*, the *Uniform Plumbing Code*, and the *Uniform Mechanical Code* should be applied. In addition, the workplace safety standards specified in 29 CFR 1910, "Occupational Safety and Health Standards," or an equivalent standard should be applied. Applicable requirements of the Americans with Disabilities Act should be met.

For a more thorough overview of safety and health considerations that should be addressed at fire department facilities, see FA-168, *Safety and Health Considerations for the Design of Fire and Emergency Medical Service Stations*.

A.12.1.3 As new stations are constructed or existing stations are renovated, a separation between the apparatus floor and living quarters should be provided.

A.12.1.5 The operation of a fire department requires the storage and indoor operation of fire apparatus that are generally housed in an enclosed building. The need to keep the apparatus and other vehicles ready for immediate service and in good operating condition, which requires the indoor running of vehicles for response and routine service/pump checks, makes storage in an enclosed area, such as an apparatus bay, necessary. The exhaust from all internal combustion engines, including diesel and gasoline-powered engines, contains over 100 individual hazardous chemical components that, when combined, can result in as many as 10,000 chemical compounds. A large majority of these compounds are today listed by state and federal regulatory agencies as being cancer causing or suspected carcinogens. The target components listed by NIOSH/OSHA consist of both hydrocarbon carbon components and compounds, which are produced as both gas-phase and particulate-phase compounds. The gases and particulates, which are viewed by NIOSH and OSHA as life threatening, consist of a cancer-causing substance known as polynuclear aromatic hydrocarbons (PAHs). Gases in diesel exhaust, such as nitrous oxide, nitrogen dioxide, formaldehyde, benzene, sulfur dioxide, hydrogen sulfide, carbon dioxide, and carbon monoxide, can also create health problems. According to NIOSH, human and animal studies show that diesel exhaust should be treated as a human carcinogen (cancer-causing substance). In accordance with the NIOSH *Pocket Guide to Chemical Hazards*, as it pertains to diesel exhaust, NIOSH recommends that occupational exposure to carcino-

Table A.11.4.5 Warning Device Placement

	Advance Warning Area					Transition Area		Activity Area	Termination Area	
	Advance Warning Sign Minimum Distance (ft)					Recommended Lengths (ft)				
Speed (mph)	A	B	C	Cumulative Total	Shoulder Taper	Taper	Distance Between Tapers (Longitudinal)	Buffer (Longitudinal)	Downstream Taper	Cone Spacing (ft)
25	200	200	200	600	45	125	250	155	50–100	25
35	350	350	350	1050	85	245	490	250		35
45	500	500	500	1500	180	540	1080	360		45
55	1000	1500	2640	5140	220	660	1320	495		55
65	1000	1500	2640	5140	260	780	1560	645		65

For S.I. Units, 1 mph = 1.6 km/hr, 1 ft = 0.3 m.

Source: US DOT Second Strategic Highway Research Program (SHRP2) Traffic Incident Management Training.

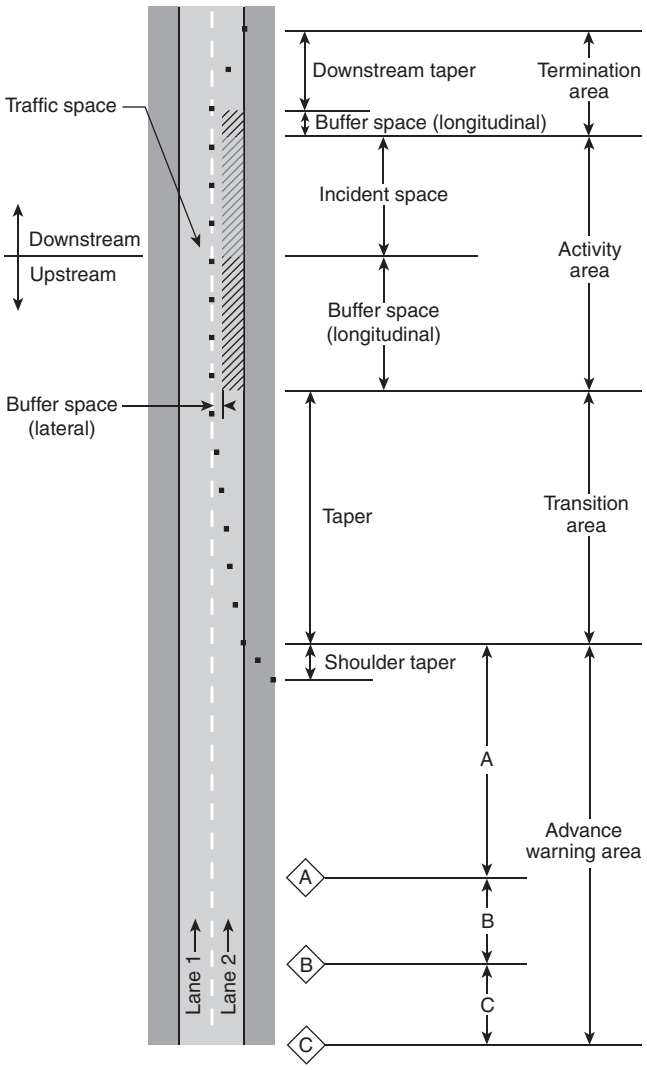

FIGURE A.11.4.5 Traffic Areas. ***(Source: US DOT Second Strategic Highway Research Program (SHRP2) Traffic Incident Management Training.)***

gens be limited to the lowest feasible concentration. NIOSH uses OSHA's classification, outlined in 29 CFR 1990.103, "Definitions," which states in part, "Potential occupational carcinogen means any substance, or combination or mixture of substances, which causes an increased incidence of benign and/or malignant neoplasm, or a substantial decrease in the latency period between exposure and onset of neoplasm in humans or in one or more experimental mammalian species as the result of any oral, respiratory or dermal exposure, or any other exposure which results in the induction of tumors at a site other than the site of administration." This definition also includes any substance that is metabolized into one or more potential occupational carcinogens by mammals.

A.12.1.8 As part of the fire station inspection program, the areas around the pole hole and the padding at the bottom of the pole should be regularly checked to ensure the safety of members using the pole.

A.12.3 In some jurisdictions, fire department facilities are maintained by other agencies. In these situations, fire departments should develop a process to expedite requests for repairs or modifications to the facility to address safety or health concerns.

A.12.4.1(1) Such systems can be set automatically to activate louder during the day and quieter at night.

A.12.4.1(4) This feature allows only members of the dispatched needed company to be alerted.

A.12.5.2.1 The transition area (yellow) should function as an air-lock vestibule between other areas.

A.12.5.6 Ice machines, refrigerators, and freezers should not be exposed to residual diesel exhaust and off-gassing of contaminated equipment and PPE.

A.12.5.7 Palletized consumable products (i.e., food, water bottles) should be isolated with shrink wrap or other controls to limit exposure and contamination.

A.13.1.5 If any member, either career or volunteer, reports for duty under the influence of alcohol or drugs, or any other substance that impairs the member's mental or physical capacity, this situation cannot be tolerated.

Evidence of substance abuse could include a combination of various factors such as slurred speech, red eyes, dilated pupils, incoherence, unsteadiness on feet, smell of alcohol or marijuana emanating from the member's body, inability to carry on a rational conversation, increased carelessness, erratic behavior, inability to perform a job, or other unexplained behavioral changes.

The possibility of liability exists if a member who is under the influence of alcohol or drugs is allowed to remain on duty, to operate or drive vehicles or equipment on duty, or to drive a private vehicle from the duty site. A member who is believed to be under the influence of alcohol or drugs cannot be allowed to operate equipment or drive a vehicle, including a private vehicle, until the condition of the member has been determined and verified.

A.13.2.1 Fire departments should consider use of the recruiting, mentoring, and training process found in the physical performance requirements referenced in the IAFF/IAFC *Wellness-Fitness Initiative Candidate Physical Ability Test (CPAT) Manual*.

A.13.4.1 The health data base for a fire department should include the reports of regular physical evaluations, injury and illness reports, health exposures, and any supporting information that could be useful in tracking, analyzing, or predicting the health effects of various events on individuals or the group. This process should comply with the medical record-keeping requirements of 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response."

A.13.4.3 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.13.4.4 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 result-

ing fatalities at some time in the future. Autopsies for fire fatalities should be conducted and recorded according to a standard protocol.

A.13.5.1 Where 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 contact with patients, when feasible.

A.13.6.3 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.13.6.4 Depending on the size and the needs of a fire department, the fire department physician might or might not be required on a full-time basis. A 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, the option 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 should exist.

A.14.1 A unique understanding of the fire service and its inherent dynamics, as well as advanced knowledge about trauma and addictions, is required of behavioral health specialists and clinicians to effectively address fire department members' behavioral issues and maintain overall behavioral health and wellness. The intrinsic value to the first responders of the availability of such behavioral health specialists trained in the unique cultural aspects of the fire service is essential to the success of the program. Such training should include regular opportunities for experiential learning such as ride-alongs and/or participation in live simulated training exercises, which help familiarize the behavioral health specialist with the daily working environment of the fire service.

Current research with first responders has shown that developing an understanding of how the body and brain respond to stress is essential. Developing coping mechanisms that support the unique behavioral health need and challenges of first responders maintain ongoing personal behavioral health is a core component of this program. Providing first responders with techniques to help mitigate the impacts of traumatic exposures is critical to long-term personal health, interpersonal dynamics, and overall organizational health. The term *resiliency* is used to address this multifaceted approach for overall health and well-being.

A behavioral health and wellness program can encompass all or some of the following services:

(1) Acute stress
(2) Traumatic exposures
(3) Post-traumatic stress (PTS)
(4) Depression
(5) Grief
(6) Family situations
(7) Line-of-duty death (LODD) support services
(8) Stress management
(9) Substance use
(10) Health and wellness concerns
(11) Resiliency

A behavioral health and wellness program can utilize all or some of the following delivery methods to reach members:

(1) Peer support program
(2) MAP or EAP behavioral health problem identification, assessment, and grief counseling
(3) Treatment and/or referrals to outside agencies, as appropriate
(4) Family support and outreach
(5) Follow-up services and case management
(6) Leadership development
(7) Executive coaching
(8) Coaching for supervisors dealing with troubled employees
(9) Workplace mediation
(10) Conflict resolution
(11) Health and psychoeducational materials/activities
(12) Management of behavioral health care under insurance plans
(13) Department diversity training
(14) Officer and department-wide training
(15) Chaplain services for spiritual needs

A.14.1.1 Basic levels of assistance as enumerated in the standard should be available at the first step of access. The objective should be to provide these services in a manner that facilitates ease of access and usage, minimizes delays and obstacles, and encourages proactive utilization. Members and their families should be informed about the program, its services, and how to access its resources, both at the time that they enter the organization and regularly throughout their tenure. The behavioral health program should also serve as a resource for identification of and access to other important community resources such as self-help groups (e.g., Alcoholics Anonymous, Al-Anon, and Alateen), community health resources, parenting resources, and so forth. The behavioral health program should collaborate with the fire department's program to address occupational exposure to atypically stressful events *(see Chapter 14)*.

The fire department behavioral health program does not need to be operated or financed by the fire department. Many community/county/state mental health agencies provide such services and these can be available without charge or at reduced fees. Labor and employee organizations can also sponsor and/or operate such programs. The fire department needs to have the ability to identify when pertinent problems exist and be able to provide confidential referral for professional services when indicated. Program standards developed by the Association of Labor-Management Administrators and Consultants on Alcoholism (ALMACA) and the Employee Assistance Professional Association (EAPA) recommend the following:

(1) The physical location at which services are provided should facilitate easy access while ensuring confidentiality.
(2) Medical and disability plans should be reviewed to ensure that plans provide adequate coverage for alcohol, substance, and mental health needs (including access to outpatient, intensive outpatient, partial hospitalization,

inpatient and residential care, and day treatment options).
(3) Staff of the fire department behavioral health program should be sufficiently familiar with medical and disability benefit plans to facilitate adequate advising regarding the extent, nature, and cost of the recommended treatment and the reimbursement available.

Primary staff for the program should possess the following:

(1) Appropriate managerial and administrative experience in a clinical setting
(2) Skill in clinical interviewing, diagnostic assessment, treatment planning, grief counseling, case management, and referral/care coordination for behavioral health problems and disorders
(3) A Ph.D. or Master's degree in the field of psychology, clinical social work, mental health counseling, or psychiatric nursing
(4) An active license in good standing in the state in which services will be delivered, as well as appropriate training and certification with respect to any direct clinical or counseling services relevant to the behavioral health issues in the fire service

Primary staff training should include regular opportunities for experiential learning such as ride-alongs and/or participation in live simulated training exercises, which help familiarize the behavioral health specialist with the daily working environment of the fire service.

Active and appropriately prepared peer personnel are often critical to the success of a fire service behavioral health program. These personnel serve most effectively as a bridge between the distressed member and professional services. They can serve valuable roles in outreach, referral, connection, awareness, and support for those who could benefit from support but might be unaware of its availability or benefits, are resistant to seeking help, or are uncertain about the confidentiality of services. With proper training, peer personnel can help coworkers evaluate situations, consider alternatives, and access resources. Preparation should include training regarding resources, protocols, and procedures related to the peer support program, as well as active listening skills, assessment, outreach, and referral skills. Preparation should emphasize boundaries between peer roles and staff responsibilities, especially with respect to counseling and intervention.

Peer personnel should operate in regular consultation with a licensed mental health provider, ideally the behavioral health specialist. It is important that members and their families are informed about the program and the services it offers and are continually updated on its existence, availability, and confidentiality. Information about the program should be made available to all new members and their families.

A.14.1.2 Referrals for specialty care should be made whenever a member or family requires treatment beyond primary counseling. Specialists receiving referrals should be fully licensed and certified to provide care consistent with appropriate standards (e.g., American Society of Addiction Medicine for alcohol and substance use treatment; American Association for Marriage and Family Therapy for family and relationship issues; American Psychiatric Association, American Counseling Association, and National Association of Social Workers for the treatment of mental disorders) and current guidelines for evidence-based practice in the treatment of clinical diagnoses (e.g., published reviews of the Cochrane Collaboration).

A.14.1.2.2.1 Confidentiality of all behavioral health data is critical to the success of the program. Members need to feel assured that the information provided to the clinicians and peer support personnel will not be inappropriately shared.

A.14.1.2.3 Adherence to federal regulations regarding confidentiality of alcohol and other drug abuse records is required of programs receiving federal funds, directly or indirectly.

Compliance with all aspects of the Health Insurance Portability and Accountability Act (HIPAA) is also required.

A.14.1.3 Referrals for specialty care should be made whenever a member or family requires treatment beyond primary counseling. Specialists receiving referrals should be fully licensed and certified to provide care consistent with appropriate standards (e.g., the American Society of Addiction Medicine for alcohol and substance abuse treatment; the American Association for Marriage and Family Therapy for family and relationship issues) and current guidelines for evidence-based practice in the treatment of clinical diagnoses (e.g., published reviews of the Cochrane Collaboration).

A.14.1.4 Policies should recognize the impacts of addictions on job performance, safety, and quality of life and emphasize the need for proactive efforts in treatment and rehabilitation.

Responsibilities of management, member organizations, and members as they relate to the policy should be clearly delineated.

Prerogatives of management and responsibilities of member organizations should not be altered or abridged by the policies enacted. Participation in assistance programs should not affect future service or career advancement. Joint sponsorship by management and member organizations is highly desirable, and cooperative action in administration of the policy is encouraged.

A.14.2.3(2) Peer support team members should complete advanced education in behavioral health topics including the following:

(1) Peer support in disaster relief operations
(2) Safety planning for suicide prevention
(3) Self-assessment
(4) Individual resiliency skills
(5) Foundations of organizational resiliency

A.14.2.7 A peer support team member should not disclose the contents of any written or oral communication regarding a peer support interaction unless there is a clear and imminent risk to the physical safety to self, others, or a vulnerable adult or child.

A.14.3.1 Components of a prevention and health promotion program should focus on cardiac risk reduction, smoking/tobacco cessation, blood pressure regulation, strength and aerobic physical fitness training, nutrition, stress management, diabetes prevention, metabolic syndrome prevention, weight management or control, shift work and sleep hygiene, infectious disease and control, and so forth, and should provide education and counseling for the purpose of preventing health problems and enhancing overall well-being.

The wellness program should also include education, resources, and counseling on a variety nonclinical issues relevant to

member wellness and maintaining a balanced life, including, but not limited to, balancing emergency service work with marriage and family obligations, interpersonal communication skills, financial literacy, career/vocational guidance, and retirement planning.

A.14.3.2 The fire department should develop a policy on the use of tobacco products for all members. The fire department should also develop a policy on the acceptance of new members into the fire department with regard to the use of tobacco products.

A.14.3.3.4 Research indicates that firefighters are at a high risk for sleep deprivation, fatigue, and sleep disorders. Firefighters who grapple with their "internal body clock" or circadian rhythm due to shift work or other long work hours and are sleep deprived often struggle with memory, focus impairment, irritability, depression, and relationship/social problems. In turn these can lead to an increased risk of accidents and injuries. These studies also note that firefighters face potential health problems, including a higher risk of ulcers, insulin resistance, metabolic syndrome, heart disease, and cancer. Strategies to consider to combat acute and chronic sleep and circadian rhythm disorders include the following:

(1) Strategic caffeine use
(2) Taking naps
(3) Proper sleep hygiene
(4) Identification and treatment of sleep disorders

A.14.3.4.1 An example of resiliency training is the "IAFF Resiliency Training" https://www.iaff.org/resiliency-training/.

A.15.1 Substantial research has been conducted and reported since the last revision of this standard, respecting occupational exposure to potentially traumatic events and interventions directed toward mitigating their impact. Certain well-engrained approaches, most specifically critical incident stress debriefing (CISD), have not been shown to be effective in controlled studies and have been reported to have resulted in paradoxical, adverse outcomes for at least some participants. A number of authoritative guidelines now recommend against routine debriefing. Accordingly, this revision specifically deletes reference to CISD/CISM (critical incident stress management) as a required or desirable intervention and shifts its emphasis toward the use of professional services.

A.15.1.1.2 The training of the behavioral health specialist should include regular opportunities for experiential learning such as ride-alongs and/or participation in live simulated training exercises, which help familiarize the behavioral health specialist with the daily working environment of the fire service.

A.15.1.2 Over the past 10 to 15 years, fire departments across the country have realized that some of the components and their implementation of the early critical incident stress management (CISM) programs have not met the needs of fire department members or responders from other emergency service departments and organizations.

Current approaches integrate information about the brain and brain trauma, understanding how repeated exposure to traumatic events can erode mental and physical resilience and accumulates over time, affecting each person differently, and how to empower each individual to manage his or her own symptoms.

Some examples of potentially traumatic events are as follows:

(1) Line-of-duty deaths
(2) Suicide of a colleague
(3) Serious work-related injury
(4) Multicasualty/disaster/terrorism incidents
(5) Events with a high degree of threat to the personnel
(6) Significant events involving children
(7) Events in which the victim is known to the personnel
(8) Events with excessive media interest
(9) Events that are prolonged and end with a negative outcome
(10) Any significantly powerful, overwhelming distressing event
(11) Administrative betrayal
(12) Forced retirement

A behavioral health program for potentially traumatic events should include the following:

(1) Selection of highly respected and trusted members to serve on the peer support team, along with the department's behavioral health specialist
(2) Department-wide education on the program prior to implementation to include training for new members
(3) Trained chaplains who can recognize signs of distress and use a nondenominational approach to persons needing emotional or spiritual support.
(4) Regularly scheduled peer team meetings for ongoing education and incident review

Interventions should focus specifically on those directly exposed to the traumatic event. Not all members who respond to an event are exposed to the trauma, and if participating in the intervention, might be unnecessarily exposed to the details of the trauma and subsequently negatively impacted.

The fire department's written policy should indicate the responsibilities of the organization, its officers, and its members in ensuring that the impact of occupational events is systematically anticipated and considered. The policy should enhance support from officers, supervisors, and peers and full integration where indicated with the department's behavioral health assistance *(see Chapter 14)*.

Research shows the importance of recognizing the long-term impacts of repeated exposure to stress and the need to educate organization members to recognize the signs of cumulative exposure. It is also critical to note that EMS providers, whether in a stand-alone EMS agency or part of a combined service, suffer at an even higher rate than many firefighters. With the increasingly larger role the fire service plays in the delivery of EMS services, the data and consequences should not be ignored. Industry agencies are beginning to recognize and provide active support for stress-related issues.

A.15.1.3.2 Examples of licensed mental health providers include psychiatrists, psychiatric nurse practitioners, advanced practice psychiatric registered nurses, clinical psychologists, licensed clinical professional counselors, licensed mental health counselors, and clinical social workers.

A.15.2 A personal exposure report should collect responder-specific information about the potential exposure and activities undertaken during the response. A personal exposure reporting system, such as the National Fire Operations Reporting System (NFORS), should be used.

The NFORS exposure tracking module serves as a personal database providing a detailed history of work and exposures in a private, encrypted, and secure online environment.

With the mobile app, any firefighter, paramedic, or officer can access and use the exposure tracker. The NFORS exposure tracking module is available as an app from the Google Play Store and the Apple App Store.

A.16.1 Cancer has become one of the leading causes of line-of-duty deaths (LODDs) of firefighters. Cancer rates of firefighters have risen dramatically in correlation with the increase in toxicity of smoke. Smoke from a fire always contains contaminants, which are harmful to health when these toxins enter the body via mouth, respiratory tract, mucous tissue or skin. Research has shown that contaminants including volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) settle on protective equipment and do not break down, leading to longer exposure times through off-gassing and an increased rate of various health problems. VOCs and PAHs are persistent toxins and remain constant in the air and on protective equipment. Additional hazards at the fireground might be caused by hazardous materials such as asbestos or flame retardant materials found in the products of combustion.

A.16.4.2 Prolonged incidents such as wildland firefighting operations, widespread natural disasters, acts of terrorism, or other occurrences in which emergency operations are segmented into extended work periods might not be conducive to the decontamination of equipment or personnel when moving from one geographic location to another during the course of the work period. In such instances, the fire department should make every reasonable effort to decontaminate personnel and equipment at regular intervals or during rehabilitation periods. All personnel and PPE should be decontaminated at the end of every work period before being released from emergency operations.

In jurisdictions where mutual aid is not readily available, or where call volume is high, call concurrency could inhibit thorough decontamination upon termination of the initial incident. In such instances, the fire department shall ensure that all personnel, contaminated PPE, contaminated firefighting equipment, and any area of the fire apparatus or automotive ambulance that is exposed to contaminants are taken out of service following the completion of the concurrent incidents and decontaminated prior to being returned to service.

A.16.5.2.1.1 The post-fire environment presents a wide range of chemical hazards, including gases, vapors, and particulates. Research from Underwriters Laboratories has concluded that the fire environment contains the following:

(1) Asphyxiants, such as carbon monoxide, carbon dioxide, and hydrogen sulfide
(2) Irritants, such as ammonia, hydrogen chloride, particulates, nitrogen oxides, phenol, and sulfur dioxide
(3) Allergens
(4) Carcinogens, such as asbestos, benzene, styrene, polycyclic aromatic hydrocarbons (PAHs) and certain heavy metals
(5) Particulates, including particles in the ultrafine range (particles less than 0.1 μ in diameter)

Exposure to these gaseous and particulate agents has been linked to acute and chronic effects resulting in increased firefighter mortality and morbidity, such as higher risk of specific cancers and cardiovascular disease. Research suggests that the use of air purifying respirators (APRs) fitted with chemical, biological, radiological, and nuclear (CBRN) canisters are effective in reducing occupational respiratory exposures in the post-fire environment. However, caution should be applied when using an APR, as cartridge breakthrough can occur with aldehydes and potentially with other chemical agents.

A.16.5.2.1.2 APR use can be considered in the post-fire environment, where no active overhaul is taking place, when positive pressure ventilation is in place, and continuous gas monitoring indicates acceptable levels.

Criteria for selecting an APR versus an SCBA can be performed according to the Canadian Centre for Occupational Health and Safety guidance at https://www.ccohs.ca/oshanswers/prevention/ppe/respslct.html.

Various methods can be used for respirator change-out schedules to meet the OSHA requirement for respiratory protection. OSHA Instruction, Directive Number: CPL 02-00-158, Inspection Procedures for the Respiratory Protection Standard, can be found at https://www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-158.pdf. These include, among many methods, data from the manufacturer and software models to determine when to change the canister — some manufacturers provide "end-of-service life" models on their websites, which require information such as breathing rate, humidity, chemical, chemical concentration, and so forth.

A.16.5.3.1 Contaminated and soiled ensembles and ensemble elements can present a health risk to individuals who come in contact with them and need to be segregated. The potential for spread of contamination is particularly high when newly contaminated or soiled ensembles and ensemble elements are transported inside the passenger compartments of vehicles or stored in living quarters. It is recognized that it is not always possible to segregate contaminated or soiled elements. Therefore, airtight protective containers or bags should be used to minimize cross-contamination. Examples include disposable polyethylene bags or sealable plastic cases that are cleanable. If a plastic bag is used, it is recommended that the bag be clear to ensure that the contents can be readily identified.

If the protective ensemble or elements are wet, they should be removed as soon as possible following transport from the fire or other emergency scene since ensembles and elements that remain wet under closed conditions can result in the growth of mold or mildew that can cause permanent damage. It is further important that protective ensembles and elements be subjected to appropriate cleaning procedures *(see NFPA 1851)* or stored under conditions where the ensemble or elements can dry following their transport. To prevent the spread of disease or infections through cross-contamination, soiled elements should not be cleaned with other items of clothing or laundry.

A.16.6.6 Saunas use a heat source or light source (in the case of infrared saunas) in a defined space to generate heat. "Wet" saunas use steam in addition to the heat source, to generate moist heat. Use of saunas results in sweating, which has been advocated by some as a way to remove chemical toxicants from the body.

The use of saunas for detoxification dates back to at least the 1980s when L. Ron Hubbard and the Scientology community utilized saunas in what has become known as the Hubbard program. This involves 20 to 30 minutes of aerobic exercise

followed by as close to 5 hours spent in a sauna at 140°F to 180°F "as could be comfortably taken," nutritional supplements (vitamins and minerals), increasing niacin doses, water and various salts to avoid dehydration and salt depletion, balanced meals, adequate sleep, and avoidance of alcohol and illegal drugs. This method of removing toxicants from the body has been advocated by the alternative medicine community.

The results of the use of this program have been published on firefighters, firefighters and other workers exposed at the World Trade Center, and police officers exposed to methamphetamine labs. Reports on this extreme regimen, which requires users to discontinue their prescription medications, have cited obvious risks including "brief full blown 'LSD trips' with hallucinations." Furthermore, no publications of adequate quality to evaluate the effectiveness of the program have been identified. Specifically, existing publications on the Hubbard program have one or more of the following research problems: small participant numbers, inadequate control groups, lack of peer review, and subjective outcomes.

Saunas can cause dehydration and heat stress. Data supporting detoxification through sweating are very limited. A recent review summarized 24 articles that examined metal levels in sweat. However, although the authors conclude that sweating should receive additional consideration for toxic element detoxification, they noted that much of the data they reviewed was old and that research was needed to establish safe, effective therapeutic protocols. Additionally, they did not select their studies based on quality. Small participant numbers were common and variation in collection and measurement methods make comparisons difficult.

A research project entitled the "Blood, Urine, and Sweat (BUS) Study" analyzed these three fluids for approximately 120 chemicals. The authors reported that some toxic elements were present in sweat but not serum in some participants. As noted above, that might have been due to smaller volumes resulting in more concentrated, easier to measure chemical levels in sweat. The authors also noted loss of required trace minerals into sweat. They specifically mentioned firefighters as a group "who by the nature of their occupations are exposed to toxic elements, may be advised to regularly undertake induced sweating." The authors noted that "Further research is required, however, to determine whether induced sweating on the day of exposure is beneficial or detrimental because enhanced circulation to the skin associated with sauna may stimulate greater absorption of toxicants on the skin." Importantly, this was a small study that included only 20 participants.

Firefighters are concerned about reducing health risks from their occupational chemical exposures. However, there are a number of reasons why the use of saunas after fire suppression activities is not recommended:

(1) The science on sauna use is still too limited to determine whether this increases excretion of chemicals in a significant way. Most chemicals are not stored long term in the body and are excreted normally.
(2) Sauna use immediately after fire suppression activities has the potential to increase absorption. Chemicals on the skin could evaporate and be inhaled. The heat in the sauna increases blood flow to the skin, which also has the potential to increase absorption across the skin including any contaminants on the skin.
(3) Fire suppression can cause heat stress and heat illnesses. Increased body temperature results in sweating and fluid loss, which can cause serum electrolyte changes and dehydration. The lower blood volume from dehydration causes less blood to be pumped with each heartbeat. These effects contribute to the well-documented increased risk of heart attack during and in the hours immediately after firefighting. Use of saunas after firefighting can increase the potential for dehydration, heat-related illnesses, and heart and kidney disorders. Just walking on a treadmill in turn-out gear increases body temperature.

In summary, at the present time, there is insufficient medical evidence to support a recommendation for use of saunas to remove toxicants from the body after firefighting, and the potential adverse health effects outweigh potential benefits.

A.16.7.2 Possible inhalation, dermal, or ocular exposure hazards include the following: Fire smoke, products of combustion, chemical vapors, diesel exhaust, burning synthetics, bedbugs, vermin, biological hazards, asbestos, perfluorooctanoic acid (PFOA), heavy metals, black mold, hazardous materials, radiation, infectious disease, unknown vapors or mists.

Toxic substances and harmful physical agents might include the following:

(1) Metals and dusts, such as lead, cadmium, and silica
(2) Biological agents, such as bacteria, viruses, and fungi
(3) Physical stress, such as noise, heat, cold, vibration, repetitive motion, and ionizing and nonionizing radiation

Biological agent is a term used to describe microorganisms that are biological in nature and origin, to which exposure in sufficient quantities and duration could result in illness or injury to human health. Biological agents include bacteria, viruses, fungi, and parasites or parts thereof or products they generate. *Reporting exposures to common agents such as cold and common influenza is not required.*

Chemical agent is a term used to describe all chemical elements and compounds in a natural state or in a processed state and their by-products, the exposure to which in sufficient quantities and duration could result in illness or injury to human health.

Physical agent is a term used to describe energies, the exposures to which in sufficient quantities and duration could result in illness or injury to human health. Physical agents include noise, ionizing or nonionizing radiation, extremes in temperature and pressure, vibration, electric and magnetic fields.

A.16.7.3.1 Exposures include direct dermal, respiratory, or ocular exposure to a toxic substance or harmful biological, chemical, or physical agent.

A personal exposure report should collect responder-specific information about the potential exposure and activities undertaken during the response. A personal exposure reporting system, such as the National Fire Operations Reporting System (NFORS), should be used.

The NFORS exposure tracking module serves as a personal database providing a detailed history of work and exposures in a private, encrypted, and secure online environment.

With the mobile app, any firefighter, paramedic, or officer can access and use the exposure tracker. NFORS exposure tracking module is available as an app from the Google Play store and the Apple App store.

A.17.1.1 This document establishes minimum requirements for the development and implementation of an incident management system. The system is intended to apply to operations conducted at the scene of emergency incidents by an emergency services organization (ESO). Although this document is written largely in terms relating to a single-agency system, it is intended to integrate with emergency management systems that apply to multiple agencies and large-scale situations.

A.17.1.3.1 For effective use of an incident management system, it should be acknowledged that emergency incidents are rarely true single-discipline events. The emergency services organization's (ESO's) incident management system should be known to participants and integrated with similar systems of other ESOs (such as law enforcement), private emergency medical service providers, and public works agencies. In fact, it is in the best interest of the ESO to promote the use of a standard system on an interagency and interdisciplinary basis.

A.17.2 Chapters 17 through 21 of this standard establish minimum performance requirements for an incident management system based on concerns for the safety and health of ESO responders. The benefits of an IMS extend far beyond this single concern, but responder health and safety is considered to be the most important reason to implement such a system. Chapters 17 through 21 of this standard also can be used for guidance in meeting the requirements for an incident command system (ICS) as outlined in other NFPA documents.

A.17.4 The incident commander has the ultimate responsibility for the safety of all ESO responders operating at an incident and for any and all other persons whose safety is affected by ESO operations. Risk management provides a basis for the following:

(1) Standard evaluation of the situation
(2) Strategic decision-making
(3) Tactical planning
(4) Plan evaluation and revision
(5) Operational command and control

A.17.5.1 Many of the requirements of the incident command system (ICS) are implemented based upon the size and complexity of the incident. Each incident commander should consider the incident management system as a toolbox and implement only the areas that are needed based upon the needs at the incident. Adopting a model system is intended to provide a uniform approach to incident management.

A.17.6.1 The ESO should evaluate existing recognized systems in order to develop or adopt a system that meets its own particular requirements and provides compatibility with systems used by other agencies that it would reasonably be expected to work with at emergency incidents.

A.17.6.5 ESOs respond to a wide variety of incidents. Most of these incidents are considered routine and involve a small commitment of resources, while a few incidents involve large commitments of resources, complex situations, and potentially high-risk operations. It is important for an incident management system to accommodate all types and sizes of incidents and to provide for a regular process of escalation from the arrival of the first responding units at a routine incident to the appropriate response for the largest and most complex incidents. The system always should be applied, even to routine incidents, to allow responders to be familiar with it, prepared for escalation, and cognizant of the risks that exist at all incidents.

A.17.6.6 During responder rescue operations, the incident commander should consider the following:

(1) Request additional resources
(2) Implement a medical group function
(3) Implement a staging area for resources
(4) Deploy a rapid intervention crew/company and a medical component for responders
(5) Modify the strategic plan to include a high-priority rescue operation
(6) Initiate a personnel accountability report (PAR)
(7) Withdrawal of companies from affected area
(8) Assign a rescue group to manage multiple rapid intervention crews/companies
(9) Ensure a safety officer has been assigned
(10) Assign a backup rapid intervention crew/company if a staged rapid intervention crew/company is deployed
(11) Assign an advanced life support (ALS) or basic life support (BLS) company
(12) Request additional responders based on span of control needs to staff supervisory positions
(13) Request specialized equipment
(14) Ensure that dispatch is monitoring all radio channels
(15) Open appropriate doors to facilitate egress and access
(16) Impact of vertical/horizontal ventilation
(17) Provide lighting at doorways, especially at points of entry

A.17.6.9 An incident management system is intended to provide a standard approach to the management of emergency incidents. The many different and complex situations encountered by emergency responders require a considerable amount of judgment in the application of the incident management system. The primary objective is always to manage the incident, not to fully implement and utilize the incident management system. The incident commander should be able to apply the incident management system in a manner that supports effective and efficient management of the incident. The use of the system should not create an additional challenge for the incident commander.

A.17.7.1 The function of resource accountability should be assigned to personnel who are responsible for maintaining the location and status of all assigned resources at an incident. As the incident escalates, this function would be placed under the planning section.

This function is separate from the role of the incident commander. The incident commander is responsible for the overall command and control of the incident. Due to the importance of responder safety, this function should be assigned to dedicated accountability personnel as the size and complexity of the incident dictates. A number of positions could function in this role including a staff assistant(s), chief officer(s), or another responder(s).

There are many means of accounting for resources. Components can include tactical worksheets, command boards, apparatus riding lists, company responder boards, electronic barcoding systems, and so forth depending on whether equipment or personnel are being tracked. These components can be used in conjunction with one another to facilitate the tracking of responders by both location and function. The components of any resource accountability system should be modular and expand with the size and complexity of the incident.

A.17.7.4 The accountability personnel should work with the incident commander and division or group supervisors to assist in the ongoing tracking and accountability of all responders.

A.17.7.5 In structural fire situations, responders leaving a geographic area within a multistory structure to change SCBA cylinders outside the structure should be re-assigned and accountability maintained by the responsible division or group supervisor where the responders are being sent (e.g., staging or rehabilitation).

A.17.7.6 Division or group supervisors should report to the responsible supervisor (e.g., incident commander, operations, logistics, base, or staging) depending on the extent to which the incident management system has been implemented, when personnel are re-assigned.

A.17.7.10 For an ESO, a standard system to account for the identity and assignment of each responder could be relatively simple when all responders arrive as assigned crews on apparatus. The identity of each crew member should at least be recorded in a standard manner on the vehicle, with a supervisor responsible for the crew.

A.17.7.11 When responders arrive in their own vehicles or assemble at the incident scene, a system is required to record the identity or each member arriving and to organize them into companies/crews/units with appropriate supervision. This requires a standard system of "reporting in" at the incident and becoming part of the overall organized management system.

A.17.7.12 The intent of this requirement is to provide assurance that all responders are notified of urgent safety warnings in the event of an unanticipated emergency situation. The system should include all responders and any other individuals who are operating in areas where they could be endangered.

A.17.7.14 One purpose of the system is to provide rapid determination of whether any responders are missing in the event that an area is required to be evacuated or a structural collapse or other unplanned event occurs. The incident management system should account for the degree of danger that is involved in specific activities and should provide more direct supervision over responders exposed to greater risks.

A.17.8.1 The incident commander should consider the circumstances of each incident and initiate rest and rehabilitation of members in accordance with the fire department's SOPs.

A.17.9.2(2) A Type 4 incident management team can be described as follows:

(1) A single- and/or multi-agency team for expanded incidents, typically formed and managed at the city or county level or by a predetermined regional entity
(2) A team of seven to ten trained personnel that respond to incidents that are typically contained within one operational period in the control phase, usually within a few hours after resources arrive on the scene
(3) A team that can be dispatched to manage or help manage incidents requiring a significant number of local and mutual aid resources, such as a major structure fire, a multi-vehicle crash with multiple patients, an armed robbery, or a hazmat spill; could also be used at public events
(4) A team that can initially manage larger, more complex incidents prior to arrival of a Type 3, Type 2, or Type 1 incident management team (IMT)

A.17.9.2(3) A Type 3 incident management team can be described as follows:

(1) A multi-agency/multi-jurisdiction team for extended incidents, formed and managed at the state, regional, or metropolitan level
(2) A team of 10-20 trained personnel that deploy together to manage major or complex incidents requiring a significant number of local, regional, and state resources, and incidents that extend into multiple operational periods and require a written incident action plan
(3) A team that can be utilized at incidents such as a tornado touchdown, earthquake, flood, or multi-day hostage/standoff situation, or at a planned mass-gathering events
(4) A team that can initially manage larger, more complex incidents prior to arrival of and transition to a Type 2 or Type 1 IMT

A.17.9.2(4) A Type 2 incident management team can be described as follows:

(1) A self-contained, all-hazard or wildland team recognized at the national and state level, coordinated through the state, Geographic Area Coordination Center, or National Interagency Fire Center
(2) A team where all personnel meet the National Wildfire Coordination Group (NWCG) training regimen at the Type 2 level for their specific position
(3) A team of 20-35 personnel that deploy together to manage incidents of regional significance and other incidents requiring a large number of local, regional, state, and national resources, including incidents where operations section personnel approach 200 per operational period and total incident personnel approach 500

A.17.10.1 In addition to being familiar with the basic structure of the incident management system, all responders should be trained to assume initial command of an incident in the absence of a more qualified individual. This applies to a situation where an individual could be the first arriving at the scene of an incident and, therefore, responsible for initiating command responsibilities at the scene.

A.17.10.5 Some functions are performed best by individuals with specific expertise, particularly in highly technical areas. The ESO should endeavor to have more than one qualified individual to perform each essential function within the incident management system.

A.18.1.1 A fire department safety officer should meet the requirements of Chapters 4 and 5 of this standard.

A.18.1.9 The intent of defining standardized assignments is to provide for efficient communications when assignments are made. Instead of explaining each assignment in detail, the incident commander makes assignments that are predefined and described in the SOPs. The incident commander determines which standardized assignments to utilize, depending on the situation. When an assignment is made, both the incident commander and assigned responder know what is expected, based on their knowledge of the written SOP.

SOPs can define certain assignments that would be assumed automatically upon arrival at the scene by designated individuals, such as the safety officer. The pre-assigned individuals should make the incident commander aware of their presence upon arrival and assume their predesignated functions unless otherwise instructed by the incident commander. This could involve relieving an individual who had been assigned to the function pending the arrival of the designated individual.

In addition to defining the role, authority, and responsibilities, SOPs should provide guidance or direction on how an assignment is to be performed.

These functions generally are performed without geographic limitation and interact with different levels of the command structure. Other functional assignments, such as staging or medical treatment, could refer to both the function and a designated location where it is applied.

A.18.2.1 Designated representatives should be assigned by other agencies involved in emergency incidents to ensure that all functions performed by their agencies support and are coordinated with ESO activities. There should be an established system for representatives of cooperating agencies to report to the command post. Where necessary, the incident commander should assign a designated liaison officer to manage interaction with representatives of other agencies. Where ESOs routinely work together under mutual aid or automatic aid systems, SOPs and communications capabilities should provide for activities to be managed routinely by one incident commander under a management system that does not necessarily require representatives of each ESO to be present at the command post.

A.18.3.1.2 The practice of "an incident within an incident" is not consistent with the National Incident Management System (NIMS) and might be confusing to proper incident management and unity of command. A better term might be "an event, situation, or emergency that occurs within an incident." These emergency situations should be organized similarly to a "mayday" on a structure fire. Immediate action by the incident commander to facilitate a rescue of the member or members is involved. The incident commander needs to direct or delegate responsibilities in accordance with the NIMS. The most important tasks in any emergency situation are to rescue and treat the member in a life-threatening situation that triggered the emergency.

A.18.3.3 There should be one clearly identifiable incident commander for the duration of the incident, from the arrival of the first ESO unit until the incident is terminated. Although a succession of individuals could assume the role of incident commander, there should be no question of who is in command. When a transfer of command takes place, it should be performed in a standard manner.

An exception to the "one incident commander" requirement can be permitted where two or more agencies have specific jurisdictional responsibility for an incident. In such circumstances, a unified command guideline can be employed, by prior agreement, with two or more individuals working together to command the incident.

A.18.3.4 The incident management system should be applied to every incident from the arrival of the first individual until termination. At small-scale incidents, the assumption of command can be informal, but the principle of one individual in overall command of the incident should always apply. Routine application of the system is intended to increase familiarity with the concepts and procedures, even where the need to apply a formal command structure is not obvious. The first arriving individual of the ESO, regardless of rank or function, should be the incident commander until relieved by a more qualified responder. All responders should be sufficiently familiar with basic responsibilities and communications protocols in order to assume the role of initially arriving incident commander, if only until a more qualified individual arrives.

A.18.3.6 The ESO should establish a protocol of command authority based on rank structure, assignments, and qualifications to define a hierarchy for transferring command. The qualifications required to perform as incident commander should increase with the size and complexity of the incident. SOPs should define the circumstances under which an officer at a higher level should respond to an incident and whether the transfer of command to an officer at a higher level is mandatory or discretionary.

In certain cases, an individual with a higher level of command authority arriving at the scene can direct the current incident commander to continue in this role. The higher level officer is responsible for the command of the incident but could act as an observer or advisor to allow the incident commander to benefit from the experience. The exercise of this option should be at the discretion of the higher ranking officer. *(See Annex R.)*

A.18.3.8 In order to effectively command an incident, it is recognized that the incident commander needs to be in the most advantageous position possible. The best position is a fixed, visible, and accessible location at the command post. This can be accomplished utilizing the incident commander's staff vehicle, a designated command vehicle, or fire apparatus. An acceptable alternative is utilizing the rear area of a sport utility vehicle or van-style vehicle. This method will provide the incident commander with an area that is quiet and free of distractions from which to command an incident.

It is also vital for the incident commander to be able to hear all radio transmissions, especially from those operating on scene. The best way to accomplish this is through the use of a radio communication headset. This will enable the incident commander to be in the best position possible to hear critical radio transmissions.

The incident command post also should be visible and recognizable. This can be accomplished by displaying a colored light, flag, banner, or other symbol to mark the location. Where special command post vehicles are used, such vehicles are usually marked with distinctive identification to make the command post recognizable.

A.18.3.8.1(5) The cold zone establishes the public exclusion or clean zone. There are minimal risks for human injury and/or exposure in this zone. For more information on control zones, see A.10.7.4 in this standard.

A.18.3.10 The incident management system should include standard operating procedures to protect responders from hazards and to keep unauthorized persons out of hazardous areas. All supervisory personnel should be aware of hazards and should take the necessary steps to control access to areas under their supervision. The incident commander should provide for control of access to the entire incident scene and,

where appropriate, should exclude, establish limitations for, or provide an escort for non-ESO responders.

A.18.3.15 A second person (staff aide) needs to be assigned to assist the incident commander and members who are assigned a supervisory responsibility Involving multiple companies or units to maintain resource accountability. Supervisors operating by themselves cannot effectively direct resources and maintain accurate accountability without an additional staff person to assist.

A.18.3.15.2 An example of an additional garment is an identifiable helmet.

A.18.3.16.2 During the initial stages of an incident, the IAP should be communicated verbally to all staged and assigned resources at an incident. For Type IV and Type V incidents, the incident commander should verbally communicate the IAP during the initial stages of the incident and throughout the incident as benchmarks are met or not met.

A.18.3.18 The acceptable level of risk is directly related to the potential to save lives or property. Where there is no potential to save lives, the risk to ESO responders needs to be evaluated in proportion to the ability to save property of value. Where there is no ability to save lives or property, there is no justification to expose ESO responders to any avoidable risk, and defensive fire suppression operations are the appropriate strategy.

A.18.3.20 The risk to ESO responders is the most important factor considered by the incident commander in determining the strategy that will be employed in each situation. The management of risk levels involves all of the following factors:

(1) Routine evaluation of risk in all situations
(2) Well-defined strategic options
(3) Standard operating procedures (SOPs)
(4) Effective training
(5) Full protective clothing and equipment
(6) Effective incident management and communications
(7) Safety procedures and safety officer
(8) Backup crews for rapid intervention
(9) Adequate resources
(10) Rest and rehabilitation
(11) Regular re-evaluation of conditions
(12) Pessimistic evaluation of changing conditions
(13) Experience based on previous incidents and critiques

A.18.4 The intelligence/investigation function, as an organizational component, can be established as a law enforcement management component but might not always be within the command staff. It can appear in one of the following four places within an incident command system organization, depending on the nature of the incident and the need for use of classified or sensitive information:

(1) Within the command staff
(2) As a unit or technical position within the planning section
(3) As a branch within the operations section
(4) As a separate general staff section

A.18.5 One approach that is used for multi-jurisdictional incidents is "unified command." In this system, each agency having jurisdictional or statutory responsibility for the outcome of the incident can have its own designated incident commander, with all of the incident commanders working together to develop one unified plan of action. This approach should be used only within a well-established interagency SOP.

Unified command is a team effort process, allowing all agencies with geographical, functional, or statutory responsibility for an incident to establish a common set of incident objectives and strategies that all involved organizations agree upon. This is accomplished without losing or abdicating agency authority, responsibility, or accountability.

Where multiple jurisdictions are responsible for the outcome of the incident, the plan should incorporate a process to assign, divide, or share overall command responsibilities in a standard manner. It is essential to establish the roles, responsibilities, and relationships of the different agencies that could be involved in advance of a major incident.

In incident management system unified command, resources stay under the administrative and policy control of their agencies. Operationally, resources are deployed by a single operations section chief based on the requirements of the incident action plan.

The operations section chief will normally be from the jurisdiction or agency that has the greatest involvement in the incident. The selection of the operations section chief should be agreed upon by the unified command, as the operations section chief will have full authority to implement the tactical operations portion of the incident action plan. It is also necessary to agree on other general staff personnel who will be implementing their portions of the incident action plan.

Unified command represents an important element in increasing the effectiveness of multi-jurisdictional or multi-agency incidents. As incidents become more complex and involve more agencies, the need for unified command is increased.

Under unified command, the various jurisdictions and/or agencies are blended together into an integrated unified team. The resulting organization could be a mix of personnel from several jurisdictions or agencies, each performing functions as appropriate and working toward a common set of objectives.

Lack of knowledge about the incident management system can limit the willingness of some jurisdictions or agencies to participate in a unified command incident organization. It is impossible to implement unified command unless agencies have agreed to participate in the process.

A single incident command post should be established, as should other facilities where all agencies can operate together, as needed. The confusion created by separate command, planning, and logistical set-ups should be avoided.

Figure A.18.5(a) shows a typical organization chart for a unified command at an incident that involves both fire and law enforcement operations. If an area command has been established, the unified command would report to the area command.

Figure A.18.5(b) shows a typical organization chart for a unified command at a multijurisdictional, multicasualty incident. In this case, each city would have an incident commander at the unified command. The unified command should ensure that a centralized medical communication function is established, coordinating modes of patient transportation destination decisions between jurisdictions, impacted areas, and response agencies.

A.18.5.1 The incident management system should be a component of interagency and multi-jurisdictional planning for emergency operations. An ESO is seldom the only agency involved in activities at the scene of emergency incidents, particularly large-scale incidents. Any other agencies that have an established role at emergency incidents also should be included.

The incident management system also should be integrated with plans for major emergencies that could involve activities at different sites. In these circumstances, the incident management system as defined in this document should apply specifically to activities conducted at a particular site and should be integrated with large-scale plans for the coordination of activities at multiple sites.

A.18.6 Major disasters such as earthquakes, floods, multiple fires, or severe storms can create a large number of incidents affecting multi-jurisdictional areas. Due to the size and broad area of potential impact, these incidents provide an appropriate environment to designate an area command to allocate resources within the identified tactical area.

Some incidents being coordinated under an area command could be multi-agency and/or multi-jurisdictional, and could have a unified command structure in place. If this is the case, then the area command should also be a unified area command. This will require full jurisdictional representation at the unified area command. It is essential that all parties are clear on agency/jurisdictional "strategic goals" and "rules of engagement."

See Annex N for a more complete discussion of area command.

A.18.6.1 Area command can coordinate emergency operations between multiple incidents or a single large area incident.

A.18.6.5 The local dispatch center should continue to dispatch resources to incidents until the area command is operational and able to assume this function. The area command's dispatch and prioritization function will require a significant number of trained personnel to track different incidents and assigned resources.

A.18.7 Table A.18.7(a) provides a comparison of the differences between a multi-agency coordination (MAC) group and area command.

There are several organizational arrangements that can be used singularly or in combination when managing an incident. Table A.18.7(b) provides a description of some of these arrangements.

A.18.8.1 The incident management system organization develops around five major functions that are required for any incident whether it is large or small. For some incidents, and in some applications, only a few of the organization's functional elements are required. However, if there is a need to expand the organization, additional positions exist within the incident management system framework to meet virtually any need.

An incident management system establishes lines of supervisory authority and formal reporting relationships. Direction and supervision follow established organizational lines at all times.

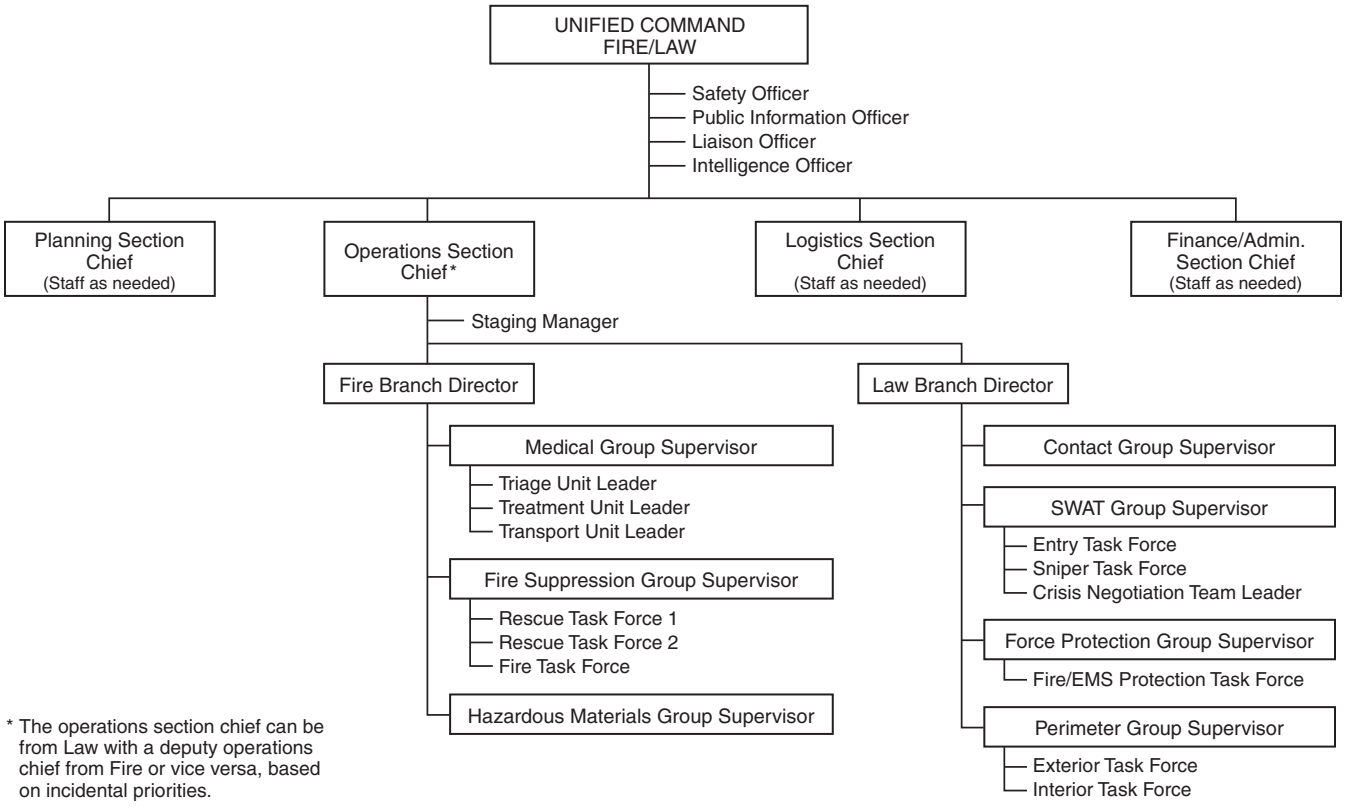

FIGURE A.18.5(a) Organization for a Unified Command Involving Fire and Law.

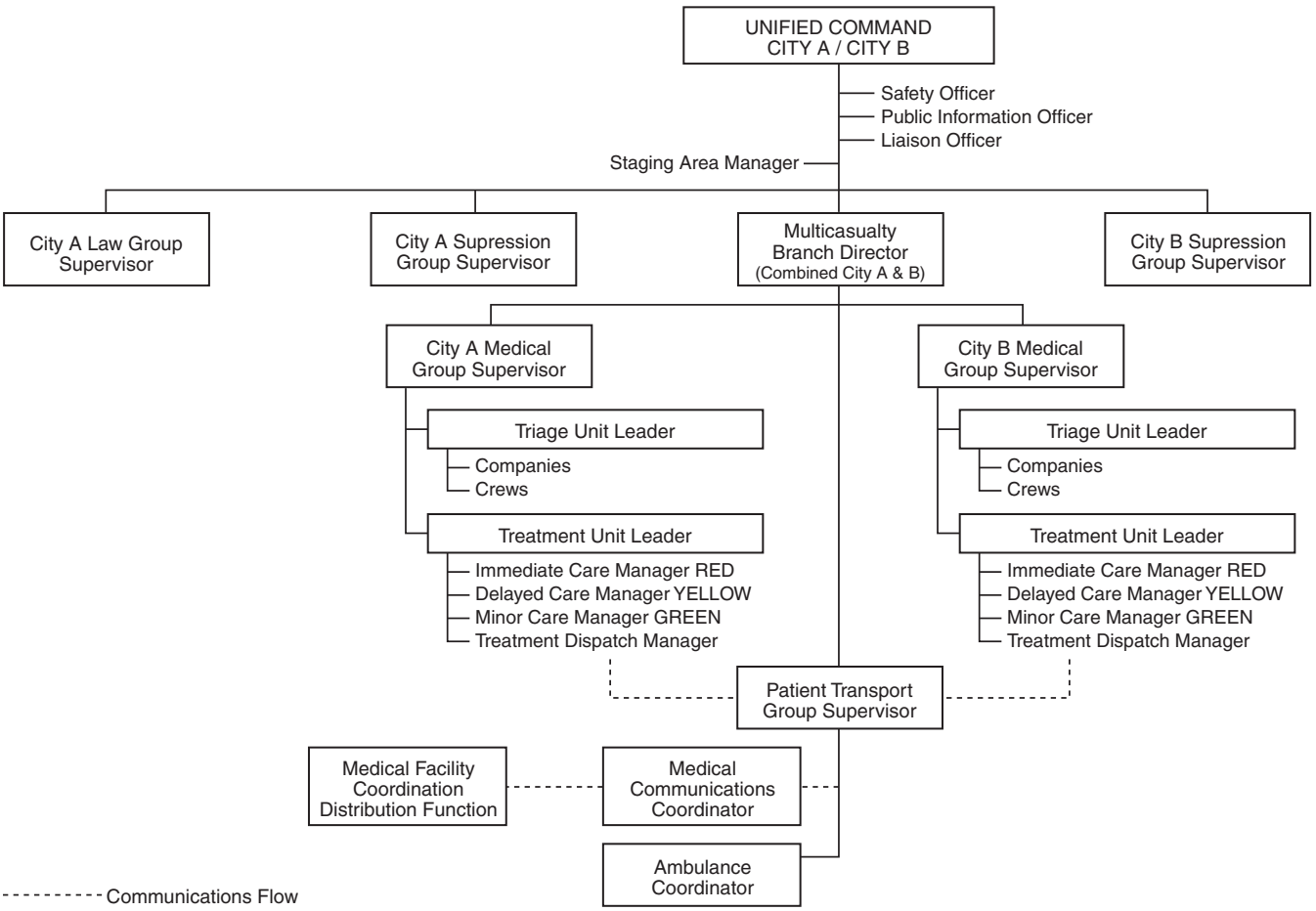

FIGURE A.18.5(b) Organization for a Unified Command Involving Multiple Jurisdiction and Multiple Casualties.

Table A.18.7(a) Comparison of Multi-Agency Coordination (MAC) Groups and Area Command

MAC Group	Area Command
Expansion of the off-site coordination and support system.	Expansion of the on-site command function of the incident command system.
Members are agency administrators or designees from the agencies involved or heavily committed to the incident.	Members are the most highly skilled incident management personnel.
Organization generally consists of the MAC group (agency administrations), MAC group coordinator, and an intelligence and information support staff.	Organization generally consists of an area commander, area command planning chief, and area command logistics chief.
Agency administrator or designee.	Delegated authority for specific incident(s) from the agency administrator.
Allocates and reallocates resources through the dispatch system by setting incident priorities.	Assigns and reassigns resources allocated to them by MAC, DOC, EOC, or the normal dispatch system organization.
Makes coordinated agency administrator level decisions on issues that affect multiple agencies.	Ensures that incident objectives and strategies are complimentary between incident management staffs under their supervision.

Table A.18.7(b) Comparative Descriptions of Incident Management Organizational Arrangements

Incident Command System (ICS)	The management system used to direct all operations at the incident scene. The incident commander (IC) is located at an incident command post (ICP) at the incident scene.
Unified Command	An application of the ICS used when there is more than one agency or jurisdiction having responsibility. Agencies work through unified command at a single ICP to establish a common set of objectives and strategies and a single incident action plan.
Area Command (Unified Area Command)	Established as necessary to provide command authority and coordination for two or more incidents often in the same proximity. Area command works directly with incident commanders. Area command becomes unified area command when incidents are multi-agency or multi-jurisdictional. Area command is established at a fixed location other than an ICP.
Department Operations Center (DOC)	A DOC can be established to manage the individual agency's resources and coverage within the jurisdiction. It can facilitate mutual aid requests or assistance for hire requests. The DOC will handle individual agency issues such as recall of personnel and staffing of resources.
Emergency Operations Center (EOC)	Also called expanded Emergency Command and Control Centers, etc. EOCs are used in varying ways at all levels of government and within private industry to provide agency coordination, direction, and control during emergencies, as determined by agency or jurisdictional policy.
Multi-Agency Coordination System (MACS)	An active or formal system used to coordinate resources and support between agencies or jurisdictions at the regional level. MACS functions are carried out by the MAC group that interacts with agencies or jurisdictions, not with incidents.

A.18.8.2 Supervisory personnel should be visible and recognizable to their subordinates and to other persons who would need to communicate with them. Supervisory personnel, such as company officers, are often identified by distinctively colored helmets or other markings. Tactical level management supervisory personnel also should be identified, particularly in situations where responders from different agencies are directly involved in operations. Colored helmets, vests, and other means are often used to identify tactical level management supervisory personnel.

A.18.8.3.2 The ESO should establish a standard time interval for progress reports from supervisory personnel. Routine progress reports should be provided at intervals of 10 to 15 minutes. If conditions change significantly at any time, this information should be transmitted promptly to the higher level supervisory personnel. Any report relating to the safety of responders should have the highest priority.

A.18.8.8.1 The guideline for clarifying conflicting orders should not apply to imminent hazard situations where immediate action is necessary to avoid a dangerous situation.

A.18.9.2 The incident management system should include command staff functions that are automatically activated upon escalation of an incident or with multiple alarms. Specific individuals should be designated to respond and assume command staff duties automatically.

A.18.9.3.2 The basic function of the command staff is to support the incident commander. The assigned individuals should be able to differentiate between routine actions and those that could have a significant impact on the overall incident. Part of their responsibility is to inform the incident commander of significant information and to request direction when major decisions are necessary.

Technical specialists can be utilized to support the incident commander/unified command. In addition to the three command staff officer positions, the incident commander or unified command can choose to appoint technical specialists as command advisors. For example, the incident commander or unified command can appoint the following specialists:

(1) A legal counsel to advise on legal matters such as those related to emergency declarations, evacuation and quarantine orders, and rights and restrictions pertaining to media access
(2) A medical advisor to provide guidance and recommendations to incident command regarding a broad range of areas such as medical care, acute care, long-term care, behavioral services, mass casualties, vector control, epidemiology, or mass prophylaxis
(3) A behavioral health resource to support the mental health and welfare of the first responders engaged in the incident
(4) A science and technology advisor to monitor incident operations and advise incident command on the integra-

tion of science and technology into planning and decision making
(5) An access and functional needs advisor to provide expertise regarding communication, transportation, supervision, and essential services for diverse populations in the affected area

The behavioral health response team is a group of trained, respected, trusted, and qualified people assigned to a significant all-hazard incident to support the mental health and welfare of the first responders engaged on the incident. This team is ordered by the Incident Commander (IC) or Incident Management Team (IMT) and reports directly to the Incident Commander/Command Staff as a Command Advisor. Team members are assembled at the time of request and should be composed of qualified personnel to match the type of potentially traumatic incident (PTI). The behavioral health response team may consist of a team lead, trained members, and a culturally informed licensed mental health clinician trained in incident response support.

Staffing of behavioral health team members will occur to meet the needs and duration of the incident. For example:

(1) The team lead will assess the need for the mental health clinician(s). Multiple mental health clinician(s) maybe utilized based on incident complexity and duration.
(2) Each behavioral health support team may have an assistant behavioral health support position for that individual team.
(3) Trained chaplain(s) or trained therapy K9(s) may be part of the team.

This team may also consist of qualified personnel from other agencies filling these behavioral health roles.

Behavioral health response is based on the idea of people with shared lived experience helping each other (firefighters helping firefighters, responders helping responders) and is built on trust, respect, and mutual understanding. Team members assist individuals by providing psychoeducation, actively listening, exploring their reactions and concerns to a potentially traumatic incident, and referring to additional resources as needed. Behavioral health response is not a tool to critique or investigate the tactical response to a potentially traumatic incident.

MODULAR DEVELOPMENT

As with other incident response organization development, the behavioral health activities will use the modular organization build-up to match the organization size and staffing to match the incident needs. For an example of how this could be done for the initial response, see Figure A.18.9.3.2(a). For increasingly larger, more complex incidents, an organizational structure represented in Figure A.18.9.3.2(b) or A.18.9.3.2(c) should be considered.

A.18.9.4.2 When interfacing with the federal government, there is a possibility the ESO will be required to coordinate the release of public information within the "joint information system" (JIS) at a designated "joint information center" (JIC).

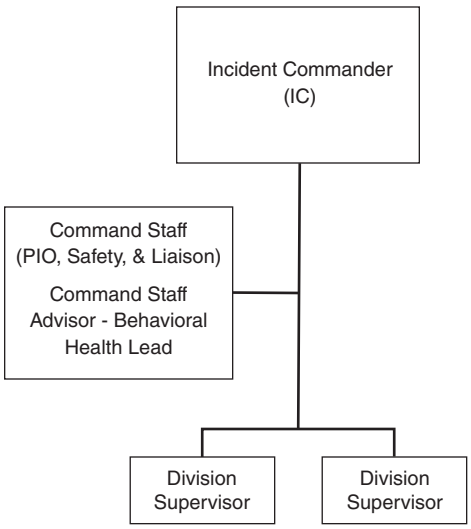

FIGURE A.18.9.3.2(a) Initial Response Organization.

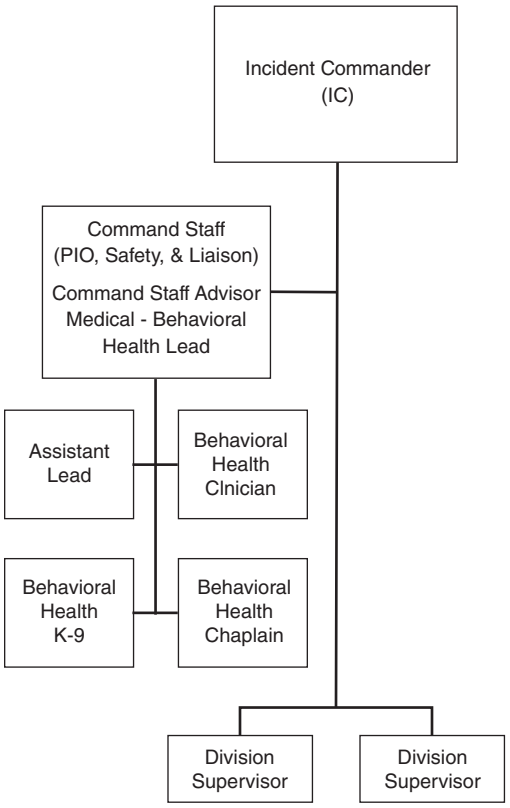

FIGURE A.18.9.3.2(b) Behavioral Health —Reinforced Response Organization.

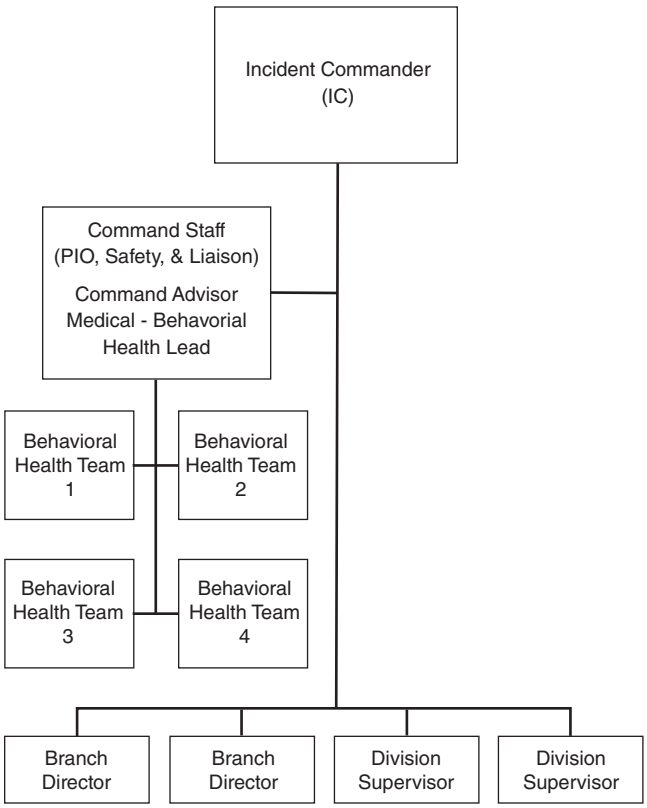

FIGURE A.18.9.3.2(c) Behavioral Health — Multi-Division/ Branch Response Organization.

A.18.9.5 An agency representative is an individual(s) that might be assigned to an incident from an assisting or cooperating agency and who has been delegated authority to make decisions on matters affecting that agency's participation at the incident. In many multi-jurisdiction incidents, an agency or jurisdiction will send a representative to assist in coordination efforts. An agency representative could represent more than one agency.

The agency representatives should report to the liaison officer or to the incident commander in the absence of a liaison officer. The agency representative should have the following major responsibilities at any incident:

(1) Ensure that all agency resources are checked in at the incident
(2) Obtain briefing from the liaison officer or incident commander
(3) Inform assisting or cooperating agency personnel on the incident that the agency representative position for that agency has been filled
(4) Attend briefings and planning meetings as required
(5) Provide input on the use of agency resources unless resource technical specialists are assigned from the agency
(6) Cooperate fully with the incident commander and the general staff on agency involvement at the incident
(7) Ensure the well-being of agency personnel assigned to the incident
(8) Advise the liaison officer of any special agency needs or requirements
(9) Report to home agency dispatch or headquarters on a prearranged schedule
(10) Ensure that all agency personnel and equipment are accounted for and released prior to departure
(11) Ensure that all required agency forms, reports, and documents are complete prior to departure
(12) Have a debriefing session with the liaison officer or incident commander prior to departure

Agency representatives may also function in the department operations centers, emergency operations centers, or area command structures.

A.18.9.5.3 These are personnel other than those on direct tactical assignments or those involved in a unified command.

A.18.9.6.1 The function of incident scene safety has to be carried out at all incidents. It is the responsibility of the incident commander who cannot perform this function due to the size or complexity of the incident to assign or request response of a safety officer to this function. There are, however, incidents that require immediate response or appointment of a safety officer, such as a hazardous materials incident or special operations incident. These types of incidents should be defined in the fire department's response policy or procedure to ensure that the safety officer responds. Likewise, some situations require a safety officer to respond after members are on the scene, such as a working fire or at the request of the incident commander.

The position of safety officer can be expanded to include the following additional roles and responsibilities under safety in responding to such incidents:

(1) The ability to cover all critical areas of the incident with safety staff
(2) Provide a structured organization and communication system to manage the safety function
(3) Provide an enhanced focus on safety-related progress reports to the command post
(4) Enhance firefighter safety at the incident scene
(5) Improve safety information to the incident commander for better command decisions

The safety officer should be implemented by the incident commander as the situation dictates, and this should be outlined in department SOPs.

A.18.9.6.2 A fire department should develop response procedures for a safety officer that is on call or designated to respond. Examples of types of situations with defined procedures could be as follows:

(1) Commercial fires
(2) Multiple-alarm fires
(3) Firefighter injury or firefighter transported for treatment
(4) Hazardous materials incident
(5) Technical rescue incident
(6) Incident commander request

A.18.9.6.4 The position of safety officer can be expanded to help manage safety functions when the number of assistant safety officers (ASOs) and stake-holders safety concerns from multiple jurisdictions cause an expansion of responsibilities and functions for the safety officer.

Types of incidents that might require expansion of the safety officer role include the following:

(1) Incidents covering a large geographical area that include numerous branches, divisions, or groups
(2) Incidents where significant acute or chronic responder health concerns require coordination and input to the plans sections
(3) Incidents requiring interface with local, state, federal, or other health and safety representatives
(4) Multi-agency incidents where unified command is established
(5) Incidents where area command is established

ASOs assigned to sections, branches, divisions, or groups can be addressed according to their area of responsibility. For example, an ASO assigned to "Division B" can be addressed as "Division B Assistant Safety Officer." ASOs assigned to sections, branches, groups, and divisions report directly to the supervisory person within that section, branch, group, or division and should have a "dot-line" link to the safety officer or ASOs assigned at the command staff level.

Other examples of ASO titles could include the following:

(1) Hazmat branch (or group) assistant safety officer (ASO-HM): A hazmat technician level trained responder performing safety functions for the hazmat branch (or group).
(2) Technical rescue branch (or group) assistant safety officer (ASO-R): A rescue technician level trained responder performing safety functions for the technical rescue branch (or group).

ASOs assigned directly to the safety officer at the command post can also be given specific assignments to help create a structured organization and communication system to manage safety functions. Examples can include the following:

(1) An ASO can utilize the specific expertise of a technical specialist to support the safety functions. Technical specialists are typically assigned to the plans section. Where no plans section has been established, the incident commander may assign a technical specialist to help with safety officer functions based on need.
(2) An ASO can be assigned at the command post to assist the safety officer to facilitate reports, actions, and needs from ASOs assigned to sections, branches, divisions, or groups.

Figure A.18.9.6.4(a) shows the lines of reporting and lines of communication for an ASO assigned to a division at a simple fire incident. Figure A.18.9.6.4(b) shows the lines of reporting and lines of communication for ASOs at an incident where they are assigned to various divisions/groups with the safety officer also having ASOs reporting directly to them. Figure A.18.9.6.4(c) shows where ASOs might be used at a multi-branch incident and the lines of reporting and lines of communication for those ASOs.

A.18.9.6.5 This can be accomplished by wearing a highly visible vest, helmet, or other indicator.

A.18.9.6.6 A recurring recommendation from NIOSH firefighter investigative reports emphasizes the need for a safety officer for fire departments. An ESO should develop a policy that defines the response of a safety officer to hazardous incidents or hazards where responders are at risk.

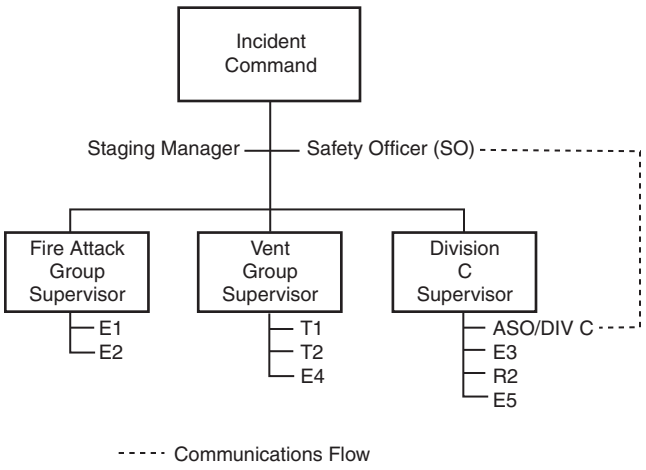

FIGURE A.18.9.6.4(a) The Use of an ASO at a Simple Fire Incident.

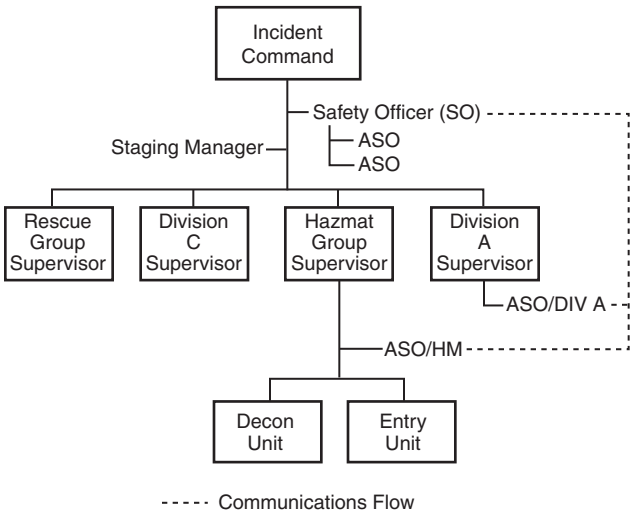

FIGURE A.18.9.6.4(b) The Use of an ASO at a Division/Group Incident.

A.18.9.6.7 There are circumstances at emergency incidents that require the immediate response or attention of a safety officer. It is unrealistic to assume that one individual would be available on a continual basis to fulfill the requirements of a predesignated safety officer. The response of the predesignated safety officer to an emergency incident might be delayed by distance, simultaneous events, or other circumstances. When a safety officer is needed at an incident scene and none is available, the incident commander should assign a qualified member to the safety officer function.

A.18.9.6.9 ESOs respond to incidents that might be outside, or have elements outside, the level of knowledge, skill, and ability of response members. In these cases, it is incumbent upon the safety officer or incident commander to utilize technical specialists (civilians or personnel from other emergency service organizations) to assist a safety officer with the health and safety issues of that incident.

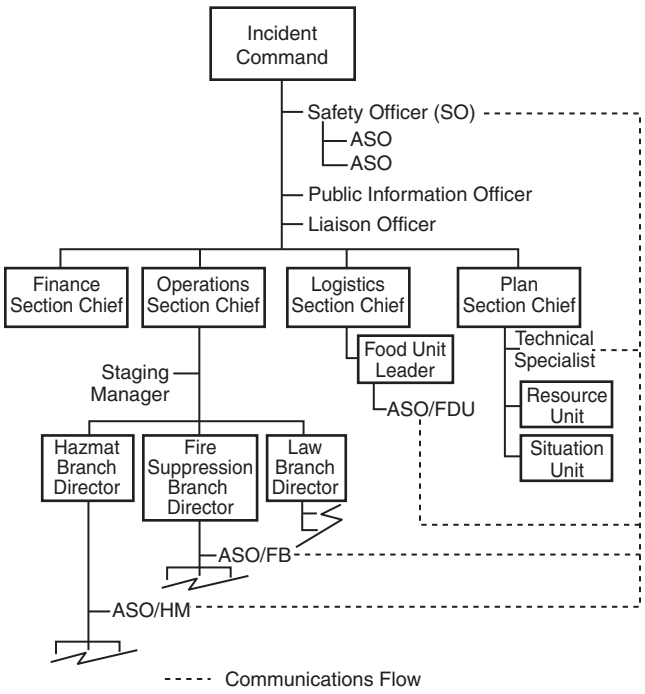

FIGURE A.18.9.6.4(c) The Use of an ASO at a Multi-Branch Incident.

Some technical specialists might have achieved certification through accredited agencies or licensing bodies in disciplines not typically held by ESO members. Examples include, but are not limited to, building official, structural engineer, occupational hygienist, hydrologist, doctor, lawyer, chemist, and any other technical specialist as required by the incident.

Although usually assigned to the planning section, depending on the requirements of the incident and the needs of the section chief, the technical specialist can be assigned anywhere within the incident management system structure.

When dealing with safety matters at an incident, a technical specialist(s) should report directly to the safety officer or the assistant safety officer assigned to the respective division or group.

A.18.9.6.9.1 Some functions are performed best by individuals with specific expertise, particularly in highly technical areas. The designated safety officer can utilize members with specific expertise in the technical specialist or assistant safety officer role. In these cases, the safety officer can address overhead safety functions while the technical specialist or assistant safety officer addresses safety functions for those with specific special operations expertise.

A.18.9.6.9.2 Due to the knowledge and expertise required at a technician-level hazardous materials incident, the safety officer needs to have an understanding of these operations. This can be achieved by being trained to the hazardous materials technician level of NFPA 472, as incorporated in the 2022 edition of NFPA 470. In cases where the designated SO does not possess the technician-level training, appointing a technician-level trained assistant or technical specialist with the necessary training will help satisfy the safety needs of the technician-level members.

Title 29 CFR 1910.120(q)(3)(vii) requires the incident commander to designate a "…safety officer, who is knowledgeable in the operations being implemented at the emergency response site." This has been interpreted to apply to hazardous materials emergency incidents and confined space rescue incidents. The appointment of a technical specialist (in this case an individual with training to the technician level) can meet this requirement where the safety officer does not possess the knowledge, training, or experience to handle such incidents.

Examples include but are not limited to hazmat technician-level operations, confined space rescues, specialist operations such as high angle and swift water rescue, urban search and rescue incidents, federal-level wildland fires, and WMD responses.

A.18.9.6.13 This identification can be accomplished by wearing a highly visible vest, helmet, or other indicator that is unique to the safety officer position.

A.18.9.6.14 Upon arrival at an incident, the designated safety officer should meet with the incident commander or designee to confirm the safety officer assignment and be integrated into the personnel accountability system. Upon confirmation, the safety officer should obtain the following information:

(1) The overall situation status and resource status
(2) The incident action plan and personnel accountability status
(3) Known hazards and concerns and establishment of control zones
(4) Status of rapid intervention teams and the rehab area
(5) Confirmation of established radio communication channels

Once this information is obtained, the safety officer should don personal protective equipment (PPE) appropriate for the potential hazards that he or she will be exposed to, as well as a safety officer identifying vest or helmet. From here, the safety officer should perform a reconnaissance of the incident and begin safety officer functions. If the safety officer enters a warm zone or hot zone as identified in Chapters 6 through 16 of this standard, the safety officer should be accompanied by another responder.

A.18.9.7.5 On-scene rehabilitation should address rest, hydration, active cooling, basic life support monitoring and care, energy nutrition (food and electrolyte replacement), and accommodations for weather conditions.

A.18.10 The incident management system organization develops around five major functions that are required on any incident whether it is large or small. For some incidents, and in some applications, only a few of the organization's functional elements could be required. However, if there is a need to expand the organization, additional positions exist within the incident management system framework to meet virtually any need.

An incident management system establishes lines of supervisory authority and formal reporting relationships.

A.18.10.1.2 The command structure should be assembled by the incident commander by grouping resources, assigning supervisory personnel, and adding levels of supervision. This procedure provides a degree of supervision that enhances the safety of all responders.

A.18.10.1.3 The strategic plan should identify the broad goals of emergency incident activities and the basic manner in which operations should be conducted. An offensive strategic plan involves operations to provide search and rescue and to control and extinguish the fire. A defensive strategic plan involves operations directed toward protecting exposures. Offensive and defensive operations should not be conducted in an area that would create unnecessary risk for fire department responders.

Tactical objectives should be based on the strategic plan and assigned by the incident commander to supervisory personnel within the command structure. Supervisory personnel should be expected to direct the assigned resources to accomplish one or more tactical objectives. The accomplishment of tactical objectives should support successful completion of the strategic plan. An example of a tactical objective is to ensure that all occupants are removed from the second floor of a building and to control the fire on that floor.

A.18.10.1.8.1 Staging provides a standard method to keep reserves of responders, apparatus, and other resources ready for action at the scene or close to the scene of an incident. Staging also provides a standard method to control and record the arrival of such resources and their assignment to specific activities. When resources are dispatched to assist at working incidents, they should be dispatched to a designated staging or base area where they can be ready for assignment when required by the incident commander. This process helps the incident commander to keep track of the resources that are on the scene and available for assignment, and to know where they are located and where specific units have been assigned. The incident commander always should attempt to keep reserves of responders, equipment, and supplies available to rotate assignments with fatigued crews and to go into action quickly when changing conditions require a rapid commitment of additional resources. Equipment failures should be anticipated, and supplies should be ordered to the scene in time and in sufficient quantities to provide a safe margin over anticipated needs. The ability to provide these reserves is necessarily dependent on the amount of resources that are available, but each ESO should have plans to utilize its available resources to maximum advantage and should have contingency plans to obtain resources from other sources that might be available.

A.18.10.1.8.2 It generally is desirable to keep staged resources in locations where they can be ready for action within 3 minutes. In some cases, particularly where imminent hazards exist, it is advisable to keep an immediate response capability in a state of readiness in a safe location that provides immediate access to the area.

The term *base* is often used to refer to a more remote location where standby resources are gathered but are not available for immediate action. As needed, resources can be moved up to a staging location where they are ready for immediate action. An example is a high-rise building where apparatus are parked at a safe distance from the building, and responders and equipment are moved in to stand by in staging on a safe floor below the fire level.

A.18.10.2.2 The incident management system should provide standard worksheets, charts, diagrams, and other forms to assist the incident commander in keeping track of pertinent information and to provide for the transfer of information in a standard format when command is transferred. The planning staff function should be to provide information such as accountability, pre-fire plans, reference information, maps, diagrams, and other pertinent information to the incident commander as needed.

A.18.10.2.7 The National Incident Management System (NIMS) allows the investigation/intelligence function in four different locations, with the initial location as a unit under the planning section, or as a group supervisor, branch director, or section chief. It is important to have an understanding of the role of intelligence/investigation and a working knowledge of the NIMS and the incident command system (ICS). When all five units are established, the planning section organization chart would be as shown in Figure A.18.10.2.7.

A.18.10.2.9.1 An example of setting up an initial incident action planning process while using the Planning "P" is found in Annex M.

A.18.10.3.2 The logistics section chief will determine the need to activate or deactivate a unit. If a unit is not activated, responsibility for that unit's duties will remain with the logistics section chief. All incident support needs are provided by the logistics section, with the exception of aviation support. Aviation support is handled by the air support group in the air operations branch.

A.18.10.3.3 When all six units are established, the logistics section organization chart would be as shown in Figure A.18.10.3.3.

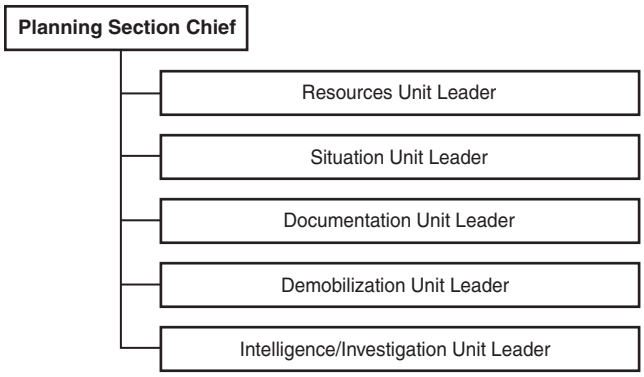

FIGURE A.18.10.2.7 Structure of Planning Section.

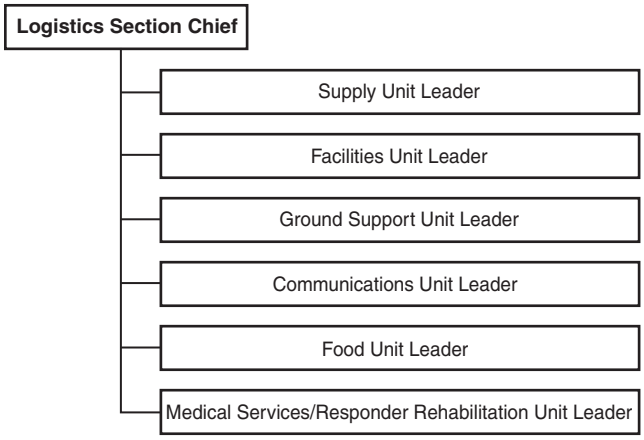

FIGURE A.18.10.3.3 Structure of Logistics Section.

A.18.10.3.5 Logistical support at an incident in a high-rise building places additional responsibilities within the logistics section. The implementation of base, lobby control, systems control, and ground (stairwell) support as functional assignments early in the incident emphasizes the need to address the resources to support a major operation. The term *base* in this context is not to be confused with the term *base camp*, which is used in wildland firefighting. *(See Annex R for additional information on functional assignments for high-rise building incidents.)*

A.18.10.4.1 Where resources necessary for the safe conduct of an incident reach beyond the procurement authority of the incident commander, a finance/administration function should be provided to authorize and expedite procurement of necessary resources.

A.18.10.4.3 The finance/administration section is established for incidents where the agency(ies) involved has a specific need for financial services. Not all agencies require the establishment of a specific finance/administration section. In some cases, where only one specific function is required (i.e., cost analysis), the position of technical specialist in the planning section could be established.

When all four units are established, the finance/administration section organization chart would be as shown in Figure A.18.10.4.3.

A.19.1 Critical emergency response data increasingly have been provided to the emergency responder by links to numerous electronic data sources. Most of these sources are computer-based systems; alarm systems; security systems; regional, local, site, or building management and information systems. It is important that these electronic data are gathered and distributed in a timely fashion to the various components of the incident command system that need the information so that an effective response can be established. Many of these inputs to the emergency responder result from data outputs generated by systems designed and installed in accordance with *NFPA 72*, which identifies specifics in NEMA Standard Publication SB 30, *Fire Service Annunciator and Interface*. In addition, electronic data may also include the distribution of real time commercial video and various forms of computer-based video. Also, the National Incident Management System (NIMS) states that effective communications planning for the ICS includes "optimal use of all assigned communication capabilities" and "providing any required off-incident communications links." Electronics data communications links are a critical part of these requirements, and an "electronic data protocol" is necessary for managing these modes of communication.

A.19.1.4 The ESO should preplan radio channel usage for all incident levels.

A.19.2.2 The intent of the use of clear text/plain language for radio communications is to reduce confusion at incidents, particularly where different agencies work together.

A.19.2.3 A change in strategic mode of operation would include, as an example for structural firefighting, the switch from offensive strategy (interior fire attack with handlines) to defensive strategy (exterior operation with master streams and hand lines) or establishing a perimeter around an active crime scene. In such an instance, it is essential to notify all affected responders of the change in strategic modes, to ensure that all responders withdraw from the area and to account for all responders.

A.19.3.1 These emergency conditions can warrant an "Emergency Traffic" message, which can include deteriorating or extremely hazardous conditions, weather changes that could intensify the situational conditions and further endanger lives, and critical changes in tactics that on-scene responders need to be made aware of. These situations require prompt attention and possibly could require coordinated action to avert an operational disaster. Effective communications are the key to assuring that appropriate action is implemented quickly in order to provide prompt and rapid aid to responders.

Evacuation Emergency Traffic Operation

In the event of potential building collapse, high tension wires down, or any other extraordinary hazard, or a change in conditions that creates an imminent danger to personnel, members will communicate this information by using "Emergency Traffic" on the radio to identify the situation. The IC is responsible for making orderly and thorough contact with all on-scene personnel by requesting "Emergency Traffic" on the radio. Using clear text/plain language to identify the conditions, the IC should announce "All Companies Evacuate the Building," "Change from an Offensive to a Defensive Attack," "Electric Lines Down," "Shots Fired," or any other critical scene information. The incident commander should confirm through the affected division and group supervisors, or company officers, that the "Emergency Traffic" information was received.

A.19.3.2 The emergency notification system should provide a means to rapidly warn all persons who might be in danger if an imminent hazard is identified or if a change in strategy is made. An emergency message format with distinctive alert tones and definitive instructions should be used to make such notifications.

A.19.3.2.1 This annex material establishes a guide for responders and supervisors to follow in the event of a lost, trapped, or injured responder. The rescue of a lost, trapped, or injured responder is time sensitive. There is a very narrow "window of survivability" for a responder who is out of air or trapped by a hazardous condition. Individual responders must not delay reporting to the incident commander (IC) if they become lost or trapped or need assistance. In addition, supervisors must not delay in reporting of a lost responder or their inability to complete a personnel accountability report (PAR). The IC must always assume that the missing responder is lost until they can be accounted for. The IC must also restructure the strategy and tactics to include a priority rescue.

Responder "Mayday" Emergencies

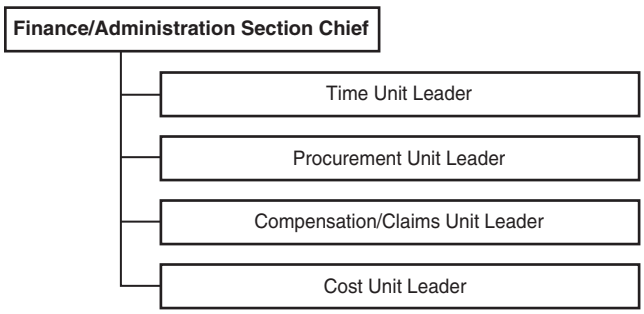

FIGURE A.18.10.4.3 Structure of Finance/Administration Section.

If a responder becomes lost, trapped, or injured, and the responder cannot resolve the situation in 30 seconds, he or she must call for help immediately.

Any delay compromises the window of survivability. Using the portable radio, the responder should activate an Emergency Button on his or her radio if equipped or announce "Mayday, Mayday, Mayday" on the radio channel he or she is operating on. In addition, he or she needs to identify the type of emergency (e.g., "Responder Down", "Responder Missing," or "Responder Trapped"). When announced, all other personnel should refrain from using that radio channel unless a radio message is necessary for the safety of personnel or involves the emergency situation. When the radio is clear, the responder should notify the IC of the responder's exact situation. It is imperative to give as much detail as possible in a concise manner to assist in locating, rescuing, and/or treating personnel.

Supervisors should then conduct a PAR of all responders assigned to them.

The IC should then confirm a PAR for the entire incident.

At the conclusion of the "Mayday" or "Emergency Traffic" situation, the IC should then transmit "All Clear, Resume Radio Traffic" on all assigned radio channels to end the emergency traffic.

A.19.3.3 Examples of emergency traffic could be "Evacuate the building," "Wind Shift from North to South," "Change from Offensive to Defensive Operations," "Electrical Wires Down," or "Shots Fired." The IC should implement a plan based upon the needs for any ESO agency. All ESO agencies should use clear text/plain language as directed by the National Integration Center and avoid using 10 codes. Clear text/plain language should be descriptive of the situation so all on-scene responders are aware of the emergency situation.

A.19.3.4 The term "Mayday, Mayday, Mayday" should be used to alert responders that a responder(s) needs immediate assistance. Once a "Mayday" condition is broadcast on the radio using the distinctive emergency traffic alert tones, the IC and/or the dispatch center is responsible to take action to clear the radio channel and to determine the member's location, situation, and resources needed to facilitate assistance. The term "Mayday" could occur following a personnel accountability report (PAR) that fails to locate or account for a suspected lost member. Some agencies have adopted the term *"LUNAR"* — location, unit assigned, name, assistance needed, and resources — to gain additional information in identifying the assistance to the responder(s) in need of assistance. It is possible that the responder who is in trouble will not have the time to complete this report. The responder might only have time to say "Help" on the radio. The IC and all responders need to understand the seriousness of the situation. It is very important to have the resources on scene and a plan established prior to the emergency condition to address the situation and to clear the "Mayday" or other "Emergency Traffic" condition as quickly and safely as possible.

Upon notification of a "Mayday" situation, it is imperative that the incident commander (IC) remain in control of the entire incident and not become overly committed to the rescue activities. *The most important task is to find and rescue the member(s) in a life-threatening situation that triggered the Mayday situation*. The IC should consider assigning a supervisor to manage the Mayday by establishing a rapid intervention group supervisor. By establishing this higher level position early, this enables the incident commander to have the rapid intervention group supervisor to enhance the overall management of the Mayday situation. Most members in a Mayday situation are rescued by other members in proximity to member(s) in trouble.

When managing an incident involving a Mayday, the incident commander may be faced with a dynamic or complicated situation. For members not in the immediate area of the Mayday, then the IC may decide to move these noninvolved members or companies to another tactical channel.

Incidents are not one size fits all. The IC has the overall responsibility when or if to implement moving nonessential members or companies to a different tactical channel. It is imperative that the IC not reassign companies to a different tactical channel who are operating in the immediate area or probable area of the lost, missing, or trapped member. The IC should not move noninvolved members or companies to another tactical channel involving a Mayday of a noncomplicated incident or situation such as a single-family dwelling fire.

Ideally, an IC should have the ability to monitor three radio channels at the fixed location command post: a dispatch channel to agency dispatch center, a tactical channel to assigned resources, and a command channel to enable communications with assigned divisions, group supervisors, and branch directors when assigned. Avoiding moving members or companies to another tactical channel during a Mayday situation ensures the IC can communicate with division/group supervisors or branch director on a designated command channel during a dynamic or complicated situation. This also ensures that the incident commander can effectively continue to manage other areas of the incident during a Mayday situation.

A.19.3.5 Examples of "Emergency Traffic" could be "Evacuate the Building," "Wind Shift from North to South," "Change from Offensive to Defensive Operations," "Electrical Wires Down," or "Shots Fired." "Mayday" is another radio term used to announce an emergency situation for a responder. The IC should implement an action plan to address the situation. In addition to the "Emergency Traffic" or "Mayday" message, the ESO can use additional signals such as three rapid air horn blasts on a fire engine air horn 10 seconds apart to alert members to evacuate as part of an SOP.

A.19.4.3 Some ESOs might also wish to be provided with reports of elapsed time-from-dispatch. This method could be more appropriate for ESOs with long travel times where significant incident progress might have occurred prior to first unit arrival.

A.20.1.1 Major incidents and events can create special problems related to incident organization. The potential problems can result in the need for a larger organizational framework to effectively manage the incident.

Major incidents are infrequent but create significant management problems. Major incidents generally have the following characteristics:

(1) Involve more than one agency (often many)
(2) Can involve more than one political jurisdiction
(3) Have more complex management and communication problems
(4) Require more qualified personnel
(5) Require large numbers of tactical and support resources

(6) Can cause more injury, illness, and death
(7) Produce the most damage to property and the environment
(8) Have extreme elements of crisis/psychological trauma that diminishes human capacity to function
(9) Are longer in duration
(10) Are the most costly to control and mitigate
(11) Require extensive mitigation, recovery, and rehabilitation
(12) Have greater media interest
(13) Often require cost recovery because of declared state for federal disaster
(14) Must have written incident action plan
(15) Might necessitate the activation of emergency operations centers or department operations centers
(16) Have incident logistical, planning, and other support needs
(17) Have potential for growth

Major incidents can come about in two ways:

(1) They start as major incidents. Earthquakes, hurricanes, floods, tanker spills, major hazmat situations, simultaneous civil disorders, and so forth, can all produce major incident management situations, some with little or no advance warning.
(2) They start as smaller incidents, then become major incidents. Smaller incidents such as fires and hazardous substance spills can become major as a result of wind or surface conditions, and also as a result of response time delays, lack of resources or support, or lack of adequate management.

Major incidents are often thought of as covering a large geographical area. Major incidents can also be incidents with great complexity, requiring the application of a variety of tactics and resources to successfully bring the situation under control. There is virtually no geographic location that is free from the potential of having a major incident. Smaller jurisdictions can, and do, have major incidents.

A.20.2.1 Many times, smaller jurisdictions have training in incident management systems/incident command systems but do not have the necessary resources to effectively manage long-term or major incidents. To do so requires adequate training and planning with adjacent jurisdictions and agencies to jointly develop incident management teams to manage the overall incident.

A.20.3.1 The positions of the incident management team can be filled by responders from local, regional, or national agencies. Depending on the nature of the incident, the composition of the team could also be from multiple disciplines.

A.20.3.2 The local agency should consider the following items for an incident command post (ICP):

(1) Wall maps, including geographic information system (GIS) if needed
(2) TV for command
(3) TV monitors with weather
(4) Computer with appropriate software and databases including preplan information
(5) Telephones
(6) Electrical supply
(7) Sufficient space
(8) Restrooms
(9) Location to keep people out of the weather
(10) Staging and/or base area for resources
(11) VIP access
(12) Helicopter landing zone
(13) Press area
(14) Security
(15) Desks, communications devices, chairs, and lighting

It is recommended that local agencies package and store these materials for rapid deployment to an ICP.

A.21.2 The most important factor in establishing supervisory levels within the command structure is the need to maintain an effective span of control. A span of control of responders between three and seven is considered desirable in most cases. To maintain an effective span of control at each level of the command structure, the organization should be expanded wherever the need is identified. This can be accomplished by adding levels or reassigning responsibilities within existing levels, or a combination of both. The incident commander also should consider activating additional levels within the command structure where activities become highly complex or are conducted over a large geographic area. Additional levels of the command structure should be available to the incident commander as an option for activation in complex and large-scale incidents. Plans for large-scale incidents should provide standard organization charts for command structures as shown in Figure A.21.2.

A.21.3.1 Although a succession of individuals could assume the role of incident commander, there should be no question of who is in command. When a transfer of command takes place, it should be performed in a consistent manner in which the organization applies this procedure on all incidents.

An exception to the "one incident commander" requirement can be permitted where two or more agencies have specific jurisdictional responsibility for an incident. In the initial stages, unified command can be employed, by verbal agreement, with two or more individuals working together to command the incident. It is important when more than one agency or organization is operating at the incident- that the agencies or organizations come together at a command post for the management of the incident.

A.21.5 It is apparent from NIOSH firefighter fatality investigations regarding line of duty deaths (LODD) that a failure exists in tracking all resources and their assigned location from the initial first alarm assignment up through multiple alarms. This creates a lack of accountability when operating at the scene of an incident. This also is a problem at incidents involving multi-discipline and multi-agency responses. It is very important for the first on-scene supervisor to initiate an accountability system maintaining resource accountability and then pass or transfer the information to the next person assuming command upon his or her arrival. A system that relies only on predesignated assignments dictated in SOP/Gs does not meet the intent of the requirement.

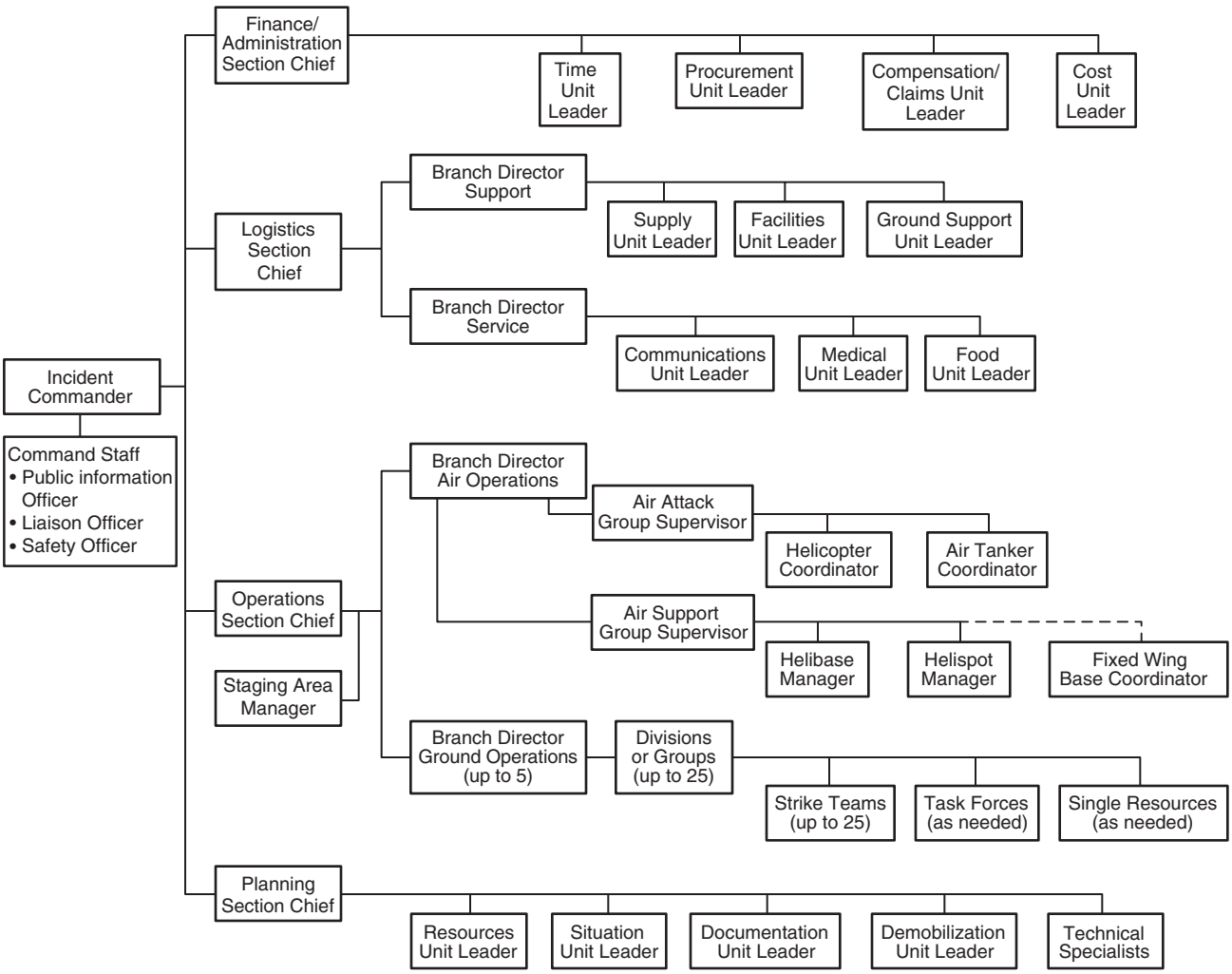

FIGURE A.21.2 Command Structure.

A.21.10 During responder rescue operations, the incident commander should consider the following:

(1) Request additional resources
(2) Implement a medical group function
(3) Implement a staging area for resources
(4) Deploy a rapid intervention crew/company and a medical component for responders
(5) Modify the strategic plan to include a high-priority rescue operation
(6) Initiate a personnel accountability report (PAR)
(7) Withdrawal of companies from affected areas
(8) Assign a rescue group to manage multiple rapid intervention crews/companies
(9) Ensure a safety officer has been assigned
(10) Assign a backup rapid intervention crew/company if a staged rapid intervention crew/company is deployed
(11) Assign an advanced life support (ALS) or basic life support (BLS) company
(12) Request additional responders based on span of control needs to staff supervisory positions
(13) Request specialized equipment
(14) Ensure that dispatch is monitoring all radio channels
(15) Open appropriate doors to facilitate egress and access
(16) Impact of vertical/horizontal ventilation
(17) Provide lighting at doorways, especially at points of entry

A.21.11 In order to effectively command an incident, it is recognized that the incident commander needs to be in the most advantageous position possible. The best position is a fixed, visible, and accessible location at the command post. This can be accomplished utilizing the incident commander's staff vehicle, a designated command vehicle, or fire apparatus. An acceptable alternative is utilizing the rear area of a sport utility vehicle or van-style vehicle. This method will provide the incident commander with an area that is quiet and free of distractions from which to command an incident. It is also vital for the incident commander to be able to hear all radio transmissions, especially from those operating on scene. The best way to accomplish this is through the use of a radio communication headset. This will enable the incident commander to be in the best position possible to hear critical radio transmissions.

The incident commander post also should be visible and recognizable. This can be accomplished by displaying a colored light, flag, banner, or other symbol to mark the location. Where special command post vehicles are used, such vehicles

are usually marked with distinctive identification to make the command post recognizable.

A.21.12.6 The acceptable level of risk is directly related to the potential to save lives or property. Where there is no potential to save lives, the risk to ESO responders needs to be evaluated in proportion to the ability to save property of value. Where there is no ability to save lives or property, there is no justification to expose ESO responders to any avoidable risk, and defensive fire suppression operations are the appropriate strategy.

A.21.12.8 The risk to ESO responders is the most important factor considered by the incident commander in determining the strategy that will be employed in each situation. The management of risk levels involves all of the following factors:

(1) Routine evaluation of risk in all situations
(2) Well-defined strategic options
(3) Standard operating procedures (SOPs)
(4) Effective training
(5) Full protective clothing and equipment
(6) Effective incident management and communications
(7) Safety procedures and safety officer
(8) Backup crews for rapid intervention
(9) Adequate resources
(10) Rest and rehabilitation
(11) Regular re-evaluation of conditions
(12) Pessimistic evaluation of changing conditions
(13) Experience based on previous incidents and critiques

A.21.13.1 Complex incidents or those that cover a large geographic area can require the appointment of assistant safety officers. These assistant safety officers can be assigned to geographical areas or functional positions such as branch directors, or division or group supervisors.

Nothing restricts an incident commander from assigning assistant safety officers. Assistant safety officers carry the same authority to change unsafe conditions at an incident as the safety officer.

Annex B Explanation of the Professional Qualifications Standards and Concepts of JPRs

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

B.1 Explanation of the Professional Qualifications Standards and Concepts of Job Performance Requirements (JPRs). The primary benefit of establishing national professional qualifications standards is to provide both public and private sectors with a framework of the job requirements for emergency services personnel. Other benefits include enhancement of the profession, individual as well as organizational growth and development, and standardization of practices.

NFPA professional qualifications standards identify the minimum job performance requirements (JPRs) for specific emergency services levels and positions. The standards can be used for training design and evaluation, certification, measuring and critiquing on-the-job performance, defining hiring practices, job descriptions, and setting organizational policies, procedures, and goals.

Professional qualifications standards for specific jobs are organized by major areas of responsibility defined as *duties*. For example, the firefighter's duties might include fire department communications, fireground operations, and preparedness and maintenance, whereas the fire and life safety educator's duties might include education and implementation, planning and development, and evaluation. Duties are major functional areas of responsibility within a specific job.

The professional qualifications standards are written as JPRs. JPRs describe the performance required for a specific job and are grouped according to the duties of the job. The complete list of JPRs for each duty defines what an individual must be able to do in order to perform and achieve that duty.

B.2 The Parts of a JPR.

B.2.1 Critical Components. The JPR comprises three critical components, which are as follows:

(1) Task to be performed, partial description using an action verb *(See Figure B.2.1 for examples of action verbs used in the creation of JPRs.)*
(2) Tools, equipment, or materials that are to be provided to complete the task
(3) Evaluation parameters and performance outcomes

Table B.2.1 gives an example of the critical components of a JPR.

B.2.1.1 The Task to Be Performed. The first component is a concise statement of what the person is required to do. A significant aspect of that phrase is the use of an action verb, which sets the expectation for what is to be accomplished.

B.2.1.2 Tools, Equipment, or Materials That Should Be Provided for Successful Completion of the Task. This component ensures that all the individuals completing the task are given the same tools, equipment, or materials when they are being evaluated. Both the individual and the evaluator will know what should be provided in order for the individual to complete the task.

B.2.1.3 Evaluation Parameters and Performance Outcomes. This component defines — for both the performer and the evaluator — how well the individual should perform each task. The JPR guides performance toward successful completion by identifying evaluation parameters and performance outcomes. This portion of the JPR promotes consistency in evaluation by reducing the variables used to gauge performance.

B.2.2 Requisite Knowledge and Skills. In addition to these three components, a JPR describes requisite knowledge and skills. As the term *requisite* suggests, these are the necessary knowledge and skills the individual should have prior to being able to perform the task. Requisite knowledge and skills are the foundation for task performance.

Table B.2.1 Example of a JPR

(1) Task to be performed	(1) Overhaul a fire scene,
(2) Tools, equipment, or materials	(2) given PPE, attack line, hand tools, flashlight, and an assignment,
(3) Evaluation parameters and performance outcomes	(3) so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

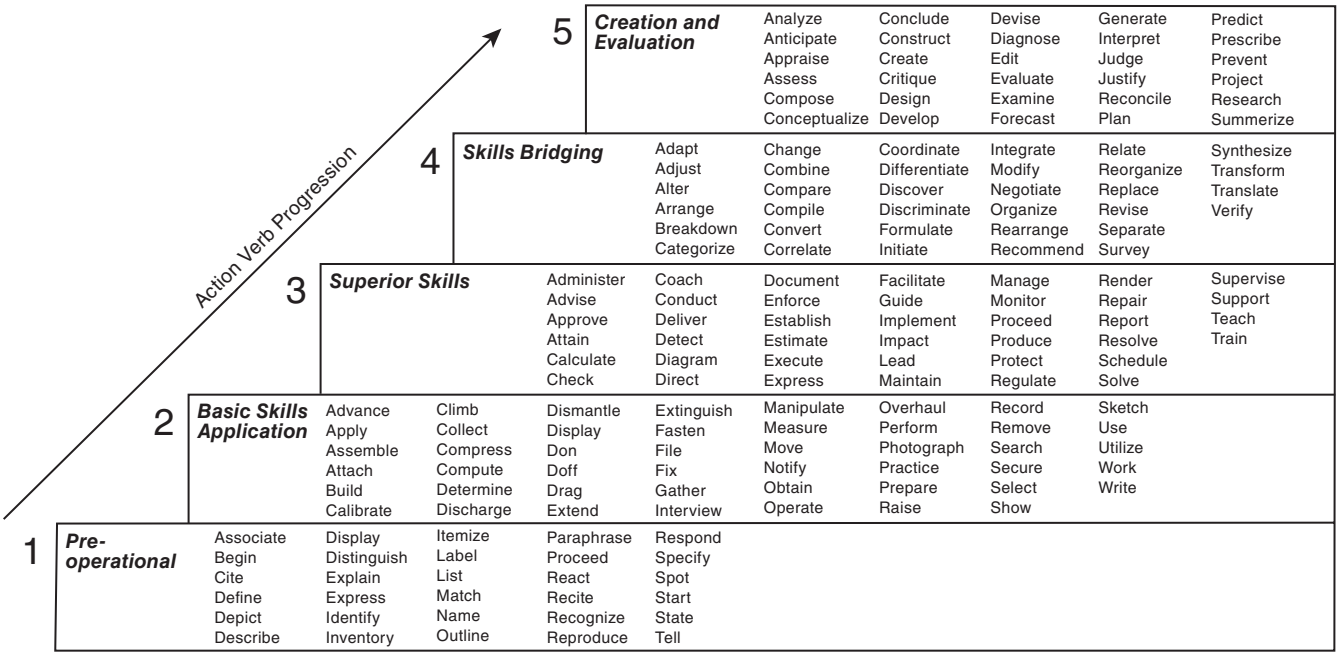

FIGURE B.2.1 Examples of Action Verbs.

B.2.3 Examples. With the components and requisites combined, a JPR might be similar to the two examples in B.2.3.1 and B.2.3.2.

B.2.3.1 Example: Firefighter I. Overhaul a fire scene, given PPE, attack line, hand tools, flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

(A) Requisite Knowledge. Types of fire attack lines and water application devices for overhaul, water application methods for extinguishment that limit water damage, types of tools and methods used to expose hidden fire, dangers associated with overhaul, signs of area of origin or signs of arson, and reasons for protection of fire scene.

(B) Requisite Skills. The ability to deploy and operate an attack line; remove flooring, ceiling, and wall components to expose void spaces without compromising structural integrity; apply water for maximum effectiveness; expose and extinguish hidden fires in walls, ceilings, and subfloor spaces; recognize and preserve signs of area of origin and arson; and evaluate for complete extinguishment.

B.2.3.2 Example: Fire and Life Safety Educator II. Prepare a written budget proposal for a specific program or activity, given budgetary guidelines, program needs, and delivery expense projections, so that all guidelines are followed and the budget identifies all program needs.

(A) Requisite Knowledge. Budgetary process; governmental accounting procedures; federal, tribal, state, and local laws; organizational bidding process; and organization purchase requests.

(B) Requisite Skills. Estimate project costs; complete budget forms; requisition/purchase orders; collect, organize, and format budgetary information; complete program budget proposal; and complete purchase requests.

B.3 Potential Uses for JPRs.

B.3.1 Certification. JPRs can be used to establish the evaluation criteria for certification at a specific job level. When used for certification, evaluation should be based on the successful completion of JPRs.

The evaluator should verify the attainment of requisite knowledge and skills prior to JPRs evaluation. Verification could be through documentation review or testing.

The individual seeking certification should be evaluated on the completion of the JPRs. The individual should perform the task and be evaluated based on the evaluation parameters and performance outcomes. This performance-based evaluation is based on practical exercises for psychomotor skills and written examinations for cognitive skills.

Psychomotor skills are those physical skills that can be demonstrated or observed. Cognitive skills cannot be observed but rather are evaluated on how an individual completes a task (process-oriented) or a task's outcome (product-oriented).

Performance evaluation requires that individuals be given the tools, equipment, or materials listed in the JPRs in order to complete the task.

Table B.3.1 provides examples of how assessment methodologies can be utilized by a certifying body.

Table B.3.1 Assessment Methodology Sample Utilization

Assessment of…	How Assessed?	How Scored?	Methodology is Likely…
Knowledge/facts *Action verb examples*: identify, define, list, cite, state, choose, name	A written test in which the candidate is required to provide specific answers to specific questions related to the JPRs *Examples*: multiple choice, sequencing, true/false, fill-in-the-blank	Responses are scored in relation to the answer that has been determined to be correct.	Cognitive
A manipulative skill in real time *Action verb examples:* climb, build, perform, raise, haul, don	A skills test to evaluate a candidate's ability to perform physical tasks in real time *Examples*: donning SCBA, raising ladders, tying rescue knots	The directly observed performance with the correct performance outcome of the skill is normally indicated as part of the yes/no or pass/fail scoring checklist.	Psychomotor (skills)
A cognitive skill that cannot be directly observed; the application of knowledge to yield a product *Action verb examples:* develop, create, write	A work product created by the candidate usually outside of the classroom setting *Examples:* creating a budget, report, proposal, lesson plan, incident action plan	Scoring rubric for expected responses evaluating how a candidate completes the task outcome after submission. Used to differentiate consistently between different degrees of candidate performance.	Product
A mental activity to perform a cognitive skill in real time that cannot be directly observed *Action verb examples*: inspect, investigate	Candidate performs the activity in the presence of the evaluator; the verbalization of mental thought "First, I…, then I…," etc. *Examples*: performing an inspection, conducting an investigation	Scoring rubric with questions and expected verbal responses. Used to differentiate consistently between different degrees of candidate performance.	Process
Documentation of the candidate's experience, training, and education against all JPRs *Action verb examples*: attend, participate, testify	A list of acceptable documents or items for each and every JPR *Examples*: coursework at training or college, participation in a certain number of investigations, testifying at court	This portfolio is evaluated using criteria that have been identified by the agency.	Portfolio

B.3.2 Curriculum Development and Training Design and Evaluation. The statements contained in this document that refer to job performance were designed and written as JPRs. Although a resemblance to instructional objectives might be present, these statements should not be used in a teaching situation until after they have been modified for instructional use.

JPRs state the behaviors required to perform specific skills on the job, as opposed to a learning situation. These statements should be converted into instructional objectives with behaviors, conditions, and the degree to be measured within the educational environment.

While the differences between JPRs and instructional objectives are subtle in appearance, their purposes differ. JPRs state what is necessary to perform the job in practical and actual experience. Instructional objectives, on the other hand, are used to identify what students should do at the end of a training session and are stated in behavioral terms that are measurable in the training environment.

By converting JPRs into instructional objectives, instructors would be able to clarify performance expectations and avoid confusion caused by using statements designed for purposes other than teaching. Instructors would also be able to add jurisdictional elements of performance into the learning objectives as intended by the developers.

Requisite skills and knowledge could be converted into enabling objectives, which would help to define the course content. The course content would include each item of the requisite knowledge and skills ensuring that the course content supports the terminal objective.

B.3.2.1 Example: Converting a Firefighter I JPR into an Instructional Objective. The instructional objectives are just two of several instructional objectives that would be written to support the terminal objective based on the JPR.

JPR: Perform overhaul at a fire scene, given PPE, attack line, hand tools, flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

Instructional Objective (Cognitive): The Firefighter I will identify and describe five safety considerations associated with structural integrity compromise during overhaul as part of a written examination.

Instructional Objective (Psychomotor): The Firefighter I will demonstrate the designed use of tools and equipment during overhaul to locate and extinguish hidden fires without compromising structural integrity.

B.3.2.2 Example: Converting a Fire and Life Safety Educator II JPR into an Instructional Objective. This instructional objective is just one of several instructional objectives that could be written to support the terminal objective based on the JPR.

JPR: Prepare a written budget proposal for a specific program or activity, given budgetary guidelines, program needs, and delivery expense projections, so that all guidelines are followed and the budget identifies all program needs.

Instructional Objective (Cognitive): The Fire and Life Safety Educator II will list and describe the bidding process for the purchase of a published program using budgetary guidelines, program needs, and the guidelines established by local organizational procedures as part of a written examination.

Instructional Objective (Psychomotor): The Fire and Life Safety Educator II will lead in the purchase of a specific fire and life safety educational program by following the bidding process to completion, using local organizational guidelines, including budgetary procedures, program needs, and delivery expense projections.

B.4 Other Uses for JPRs. While the professional qualifications standards are used to establish minimum JPRs for qualification, they have been recognized as guides for the development of training and certification programs, as well as a number of other potential uses.

These areas might include the following:

(1) *Employee Evaluation/Performance Critiquing.* The professional qualifications standards can be used as a guide by both the supervisor and the employee during an evaluation. The JPRs for a specific job define tasks that are essential to perform on the job as well as the evaluation criteria to measure completion of the tasks.
(2) *Establishing Hiring Criteria.* The professional qualifications standards can be helpful in a number of ways to further the establishment of hiring criteria. The authority having jurisdiction (AHJ) could simply require certification at a specific level — for example, Firefighter I. The JPRs could also be used as the basis for pre-employment screening to establish essential minimal tasks and the related evaluation criteria. An added benefit is that individuals interested in employment can work toward the minimal hiring criteria at local colleges.
(3) *Employee Development.* The professional qualifications standards can be practical for both the employee and the employer in developing a plan for the employee's growth within the organization. The JPRs and the associated requisite knowledge and skills can be used as a guide to determine the additional training and education required for the employee to master the job or profession.
(4) *Succession Planning.* Succession planning addresses the efficient placement of individuals into jobs in response to current needs and anticipated future needs. A career development path can be established for targeted employees to prepare them for growth within the organization. The JPRs and requisite knowledge and skills could then be used to develop an educational path to aid in the employee's advancement within the organization or profession.
(5) *Establishing Organizational Policies, Procedures, and Goals.* The professional qualifications standards can be functional for incorporating policies, procedures, and goals into the organization or agency.

B.5 Bibliography.

Annett, J., and N. E. Stanton, *Task Analysis*. London and New York: Taylor and Francis, 2000.

Dubois, D. D., *Competency-Based Performance Improvement: A Strategy for Organizational Change*. Amherst, MA: HRD Press, 1993.

Fine, S. A., and S. F. Cronshaw, *Functional Job Analysis: A Foundation for Human Resources Management (Applied Psychology Series)*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

Gupta, K., C. M. Sleezer (editor), and D. F. Russ-Eft (editor), *A Practical Guide to Needs Assessment*, 3rd edition. San Francisco: Pfeiffer, 2014.

Hartley, D. E., Job *Analysis at the Speed of Reality*. Amherst, MA: HRD Press, 2014.

Hodell, C., *ISD from the Ground Up: A No-Nonsense Approach to Instructional Design*, 3rd edition. Alexandria, VA: American Society for Training & Development, 2011.

Jonassen, D. H., M. Tessmer, and W. H. Hannum, *Task Analysis Methods for Instructional Design*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

McArdle, G., *Conducting a Needs Analysis* (Fifty-Minute Book). Boston: Crisp Learning, 1998.

McCain, D. V., *Creating Training Courses (When You're Not a Trainer)*. Alexandria, VA: American Society for Training & Development, 1999.

Morgeson, F. P., Brannick, M. T., and E. L. Levine, *Job and Work Analysis: Methods, Research, and Applications for Human Resource Management*, 3rd edition. Thousand Oaks, CA: Sage Publications, 2019.

NFPA 1010, *Standard on Professional Qualifications for Firefighters*, 2024 edition.

NFPA 1030, *Standard for Professional Qualifications for Fire Prevention Program Positions*, 2024 edition.

Phillips, J. J., *In Action: Performance Analysis and Consulting*. Alexandria, VA: American Society for Training & Development, 2000.

Robinson, D. G., and J. C. Robinson (editors), *Moving from Training to Performance: A Practical Guidebook*. Alexandria, VA: American Society for Training & Development; San Francisco: Berrett-Koehler, 1998.

Schippmann, J. S., *Strategic Job Modeling: Working at the Core of Integrated Human Resources*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

Shepherd, A., *Hierarchical Task Analysis*. London and New York: Taylor and Francis, 2000.

Zemke, R., and T. Kramlinger, *Figuring Things Out: A Trainer's Guide to Needs and Task Analysis*. New York: Perseus Books, 1982.

Annex C Overview of JPRs for Health and Safety Officer and Incident Safety Officer (1521)

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

C.1 Overview of JPRs for Health and Safety Officer and Incident Safety Officer. Table C.1(a) and Table C.1(b) provide the user of the standard with an overview of the job performance requirements (JPRs) to the duties associated with the positions of health and safety officer (HSO) and incident safety officer (ISO) found in the document. The tables are intended to assist the user of the document with the implementation of the requirements and the development of training programs using the JPRs.

A candidate for the position of ISO is required to meet the JPRs in Sections 5.2 through 5.7 of this standard and the requirements defined in Chapter 4 of NFPA 1021.

Table C.1(a) Overview of JPRs for Health and Safety Officer

Definition of Duty	JPR
Risk Management This duty involves developing and managing an organization's risk management plan, implementing safety provisions of the plan with training and education programs, developing an operational risk management plan, and developing a plan for the treatment and transport of an injured or ill member to a medical or health care facility.	**4.3.1** Develop an organizational risk management plan that addresses the risks specified in Chapter 6, given injury reports, vehicle incident reports, near-miss or equipment malfunction or failure reports, and other reports as determined by the AHJ, so that risks are identified, categorized, and control measures are implemented and monitored. **4.3.2** Manage an organizational risk management plan, given an organization, organizational activities, a risk management plan and a communications method for distributing the plan, so that the plan is communicated to the members of the organization, elements of the plan are integrated into the organizational operation, needed modifications are identified, and the modifications are implemented. **4.3.3** Implement safety provisions of the organization's risk management plan into training and education programs, given an organizational risk management plan, a training or education program, and organizational goals and objectives, so that the organization's risk management program is incorporated into the training and education programs, records are maintained, and the training and education programs meet the stated operational safety goals and objectives for emergency and nonemergency incidents. **4.3.4** Develop an operational risk management plan given the requirements of Chapter 10, so that an incident management system (IMS) that meets the requirements of Chapters 17 through 21 is established with written SOP applying to all members involved in emergency operations. **4.3.5** Develop a plan for the treatment and transport of an injured or ill member to a medical or health care facility, given applicable resources, policies and procedures, and SOP/Gs, so that the procedure ensures that all members with life-threatening and non-life-threatening occupational injuries, illnesses, and exposures will receive immediate emergency medical care and, if necessary, transportation to the most appropriate medical or health care facility.
Laws, Codes, and Standards This duty involves establishing, assessing, and reporting the effectiveness of SOP/Gs for an occupational health, safety, and wellness program.	**4.4.1** Establish SOP/Gs for an occupational health and safety program, given an organization, applicable laws, codes, and standards, an established SOP/Gs template, so that the information is in a presentable format for fire department official review and adoption, the procedures and guidelines comply with applicable laws, codes, and standards, and the SOPs/Gs are reviewed and revised, as needed. **4.4.2** Assess and report the adequacy and effectiveness of compliance with occupational health and safety SOP/Gs, given access to current state/provincial and federal safety and health legislation, codes, regulations, and standards and a thorough knowledge of organizational operations, policies and training, so that accurate information on fire department compliance with the applicable laws, codes, standards, and SOP/Gs is communicated to the AHJ.
Training and Education. This duty involves developing, distributing, and implementing health and safety information to fire department members through training and education to support the organization's health and safety procedures, along with developing safety procedures for live fire training exercises.	**4.5.1** Develop and distribute health and safety information for the education of fire department members, given Chapters 6 through 16 of this standard, SOP/Gs, and health and safety policies used by the AHJ, and a means for conveying clear, concise, and correct information to update and train members. **4.5.2** Implement the training and education of fire department members on the organization's health and safety procedures and Chapters 6 through 16 of this standard, given Chapters 6 through 16, SOP/Gs, and health and safety policies used by the AHJ, so that all emergency and nonemergency functions are evaluated, level of compliance is documented and communicated to the appropriate person(s). **4.5.3** Develop a safety procedure for live fire training exercises, given a list of live training evolutions utilized by the AHJ, instruction plans for live fire training exercises, and NFPA 1403, so that safety procedures for instructors and students are documented, and the requirements of NFPA 1403 are met.

(continues)

Table C.1(a) *Continued*

Definition of Duty	JPR
Accident Prevention This duty involves developing, implementing, and managing an accident prevention program and practices.	**4.6.1** Manage a fire department accident prevention program by utilizing engineering controls, administrative policies and procedures, education, protective clothing and protective equipment, given the fire department's risk management plan, accident, occupational injury, and occupational illnesses data, and reports on department functions, so that the program meets the requirements of Section 4.3, the work practices are identified, and recommendations are communicated to the appropriate person(s). **4.6.2** Implement training for safe work practices on emergency and nonemergency operations, given a risk management plan, SOP/Gs, and a training curriculum, so that the training class is delivered and members are given the necessary information to perform their job tasks in accordance with the risk management plan. **4.6.3** Develop an emergency vehicle safety program, given fire department SOP/Gs, applicable traffic laws, and an emergency vehicle operator manual, so that applicable SOP/Gs are communicated to members. **4.6.4** Conduct a periodic safety audit, given Chapters 6 through 16 of this standard, fire department operations, apparatus, equipment, facilities, training and education programs, SOP/Gs, and an audit template, so that work practices and procedures are conducted in compliance with applicable federal, state/provincial, and local laws, codes and standards; and the safety audit report and recommendations are communicated to the appropriate person(s).
Accident Investigation, Procedures, and Review These duties involve developing policies for and conducting accident and injury investigations, along with establishing procedures and coordinating actions to implement corrective actions.	**4.7.1** Conduct a safety and health investigation, given an incident or planned event involving an occupational injury, illness, exposure, fatality, near miss, or other potentially hazardous condition involving fire department members, fire department vehicles, apparatus, equipment or facilities, SOP/Gs, health and safety policies, so that the facts and the root cause of the incident are correctly identified, deviations from SOP/Gs established by the AHJ and health and safety policies are noted, recommendations are made for preventing similar losses in the future, and all information gathered in the investigation is documented, reported, and recorded according to policies established by the AHJ. **4.7.2** Develop a policy for reporting accident and injury investigations, given an incident or planned event, applicable documents, techniques, SOP/Gs, and all applicable laws, regulations, and standards, so that the accident and/or injury is documented, procedures are reviewed, and all local, state/provincial, and federal requirements are met, documentation is completed, and recommendations for revision are made. **4.7.3** Establish procedures for a health and safety component of a post-incident analysis, given an incident or planned event, incident information, data, reports or records, SOP/Gs, necessary technical knowledge, and all applicable laws, regulations, and standards, so that risks to personnel are identified and reduced or eliminated at future incidents, and the applicable AHJ SOP/Gs are reviewed and revised as needed. **4.7.4** Coordinate the development of a corrective action plan, given a team, a list of recommendations arising from the investigation of occupational accidents, injuries, deaths, illnesses, exposures, observation of incident scene activities, and departmental policies and procedures, so that root causes are determined, the plan is documented, and controls are implemented according to departmental policies and procedures.

(continues)

Table C.1(a) *Continued*

Definition of Duty	JPR
Records Management and Data Analysis This duty involves the oversight of accident reporting and the inspection testing and maintenance records of fire department equipment.	**4.8.1** Manage the collection and analysis of data related to accidents, occupational deaths, injuries, illnesses, and exposures to infectious agents and communicable diseases, given incident-related data, a data collection and storage system, the requirements of Chapter 6 of this standard, so that the data summarizes fire department experience in different categories, comparisons can be made with other fire departments, national trends, and other occupations and industries, and the information can be accessed for future reference and use. **4.8.2** Verify records are maintained regarding the periodic inspection and service testing of fire apparatus and equipment, inspection and service testing of protective clothing and protective equipment, and fire department facilities, given Chapters 6 through 16 of this standard, inspection and service testing records for fire apparatus, equipment, and protective clothing and protective equipment, so that records are secure, accessible, and in a format that can be easily analyzed. **4.8.3** Maintain records of corrective actions taken to mitigate health and safety hazards or unsafe practices, given evidence of corrective actions implemented, so that records of corrective actions are accessible and in a format that is appropriate for analysis. **4.8.4** Develop a report on fire department accidents, occupational injuries, illnesses, deaths, and exposures, given the accident and injury data and necessary equipment, so that the report, which may include recommendations, is communicated to the appropriate person(s)
Apparatus and Equipment This duty involves recommending safety- related specifications for fire apparatus, equipment, and PPE, and verifying compliance with the fire department's health, safety, and wellness plan.	**4.9.1** Recommend safety-related specifications for fire apparatus and fire equipment, given new or existing fire apparatus and fire equipment specifications, information on new fire apparatus and fire equipment technology, and risks identified in the risk management plan, so that the specifications meet the fire department needs identified in the risk management plan, and federal, state/provincial, local laws, and NFPA standards are complied with, and the specifications are documented. **4.9.2** Recommend safety-related specifications for protective clothing and protective equipment, given new or existing protective clothing and protective equipment specifications, new protective clothing and protective equipment technology, and risks identified in the risk management plan, so that the specifications meet the fire department needs identified in the risk management plan, federal, state/provincial, local laws, and NFPA standards are complied with, and the specifications are documented. **4.9.3** Verify performance testing of fire apparatus and fire equipment is being conducted, given performance testing requirements, applicable provisions of Chapter 8 of this standard, so that a determination can be made for the suitability of continued service. **4.9.4** Verify the development of an annual evaluation plan for the organization's in-service fire and emergency vehicles, given the organization's emergency vehicles and current NFPA minimum vehicle safety standards, so that a plan to retire, refurbish, or replace them based on the requirements in NFPA 1910 is developed and implemented. **4.9.5** Verify the development of an annual evaluation plan for the organization's in-service fire and emergency vehicles, given the organization's emergency vehicles and current NFPA minimum vehicle safety standards, so that a plan to retire, refurbish, or replace them based on the recommendations in Annex D of NFPA 1900 and NFPA 1910 is developed and implemented.

(continues)

Table C.1(a) *Continued*

Definition of Duty	JPR
	4.9.6 Verify the development, implementation, and maintenance of a protective clothing and protective equipment program that provides for the selection, care, maintenance, storage, and periodic inspection and evaluation of all protective clothing and equipment; given Chapters 6 through 16 of this standard, protective clothing and protective equipment, care, storage, and maintenance resources, SOP/Gs established by the AHJ, and all applicable laws, regulations, and standards, so that a determination can be made for the suitability of continued service.
Facility Inspection This duty involves developing a facility health and safety inspection plan and conducting inspections for compliance.	**4.10.1** Develop a health and safety facility inspection SOP/G, process, and checklist for a fire department facility, given the requirements of 12 of this standard, and available resources, so that the appropriate inspection procedures are developed, and safety and health hazards are noted in accordance with all applicable laws, regulations, and standards. **4.10.2** Conduct a health and safety inspection for a fire department facility, given the requirements of Chapter 12 of this standard, a facility that requires an inspection, and available resources, so that the appropriate inspection procedures are selected and implemented in accordance with all applicable laws, regulations, and standards, the inspection is conducted safely, all the required reports are completed; and ensure the violations are corrected.
Occupational Health, Safety, and Wellness Program Management This duty involves coordinating and analyzing fire department health, safety, and wellness program management.	**4.11.1** Analyze the fire department health maintenance program, given a fire department health maintenance program and the medical and physical requirements of Chapter 13 of this standard, so that the program includes medical, physical performance, and health and fitness requirements, as well as a health database, infectious control procedures, a fire department physician, and fitness for duty evaluations; and recommendations are made to correct any noted deficiencies. **4.11.2** Coordinate the fire department health maintenance program, given a fire department health maintenance program and the medical and physical requirements of Chapter 13 of this standard, so that the program includes medical, physical performance, and health and fitness requirements, as well as a health database, infectious control procedures, a fire department physician, and fitness for duty evaluations; and recommendations are made to correct any noted deficiencies.
Liaison This duty involves communicating and informing on the fire department occupational health and safety program to internal and external stakeholders.	**4.12.1** Communicate recommendations from the fire department occupational health and safety committee to the appropriate person(s), given SOP/Gs and health and safety policies used by the AHJ, a fire department occupational health and safety committee, and committee recommendations, so that all recommendations are documented and forwarded to the appropriate person(s). **4.12.2** Provide information and assistance to personnel for surveying their districts regarding potential health and safety hazards, given a scenario, the fire department's risk management plan, and SOP/Gs, so that they will be able to identify and report health and safety hazards that could have adverse effects on fire department operations. **4.12.3** Develop recommendations for changes in equipment, procedures, and methods based on results of evaluations; given recommendations from the fire department occupational safety and health committee, safety audits, an analysis of injury statistics or other reliable sources of hazardous conditions or injury data, so that the recommendations for equipment, procedures and methods can be accepted and approved in accordance with the AHJ. **4.12.4** Verify medical advice and treatment are available to members of the fire department, given a fire department physician, fire department members, understanding of occupational medicine for the fire service and the IAFF/IAFC Fire Service Joint Labor Management Wellness-Fitness Initiative, so that members receive the necessary information to maximize their health, wellness, and safety.

(continues)

Table C.1(a) *Continued*

Definition of Duty	JPR
	4.12.5 Provide information and assistance regarding risks that may impact operations, given a scenario, the fire department's risk management plan, SOP/Gs, so that members can perform their job tasks in a safe and effective manner.
Infection Control. This duty involves assessing and implementing a fire department's infection control program, and as necessary, acting as the infection control officer.	**4.13.1** Assess the fire department's infection control program, given a copy of the department's program, incident reports, and access to infection control equipment and facilities, so that the requirements of the Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581 are met. **4.13.2** Function as the fire department infection control officer, if an infection control officer position does not exist in the fire department, given an infection control scenario, so that the objectives of the infection control program as specified in the requirements of Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens"; and NFPA 1581 are met. **4.13.3** Identify minimum criteria for fire station infection control, given basic construction plans, drawings, and design guides so that deficiencies are identified, documented, and reported in accordance with US federal law, Code of Federal Regulations, Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA), National Institute of Occupational Safety and Health (NIOSH) and/or the American Conference of Government Industrial Hygienists (ACGIH) Occupational Exposure Limits, National Fire Protection Association (NFPA), the United States Fire Administration (USFA), and policies and procedures of the jurisdiction.

Table C.1(b) Overview of JPRs for Incident Safety Officer

General Requirements This duty involves the general activities of an ISO at all types of incidents.	**5.2.1** Perform the role of ISO within an incident command system (ICS) at an incident or planned event, given an incident or planned event, an ICS structure, a command post, a briefing from an incident commander (IC) or outgoing ISO, SOP related to health and safety, an incident action plan (IAP), applicable protective clothing and protective equipment, and communications and information recording equipment, so that the assignment is received and understood; situational information about the incident or planned event is received; incident priorities, goals, and objectives are transferred; action is taken to mitigate any immediate life safety threats; and applicable communication means are employed. **5.2.2** Monitor the IAP, conditions, activities, and operations, given an incident or planned event, an IAP, and risk management assessment criteria, so that activities and operations that involve an unacceptable level of risk can be altered, terminated, or suspended to protect members' health and safety. **5.2.3** Manage the transfer of ISO duties, given an incident or planned event, an established command structure and ISO, an IAP, an incident safety plan, a current situation status, incident resources, a command post, incident documentation, and communications equipment, so that incident information is exchanged, reports and plans for the subsequent operational period are completed, continuity of authority and situational awareness are maintained, changes in incident or planned event complexity are accounted for, the new ISO is briefed on the incident or planned event, and the new ISO is identified. **5.2.4** Stop, alter, or suspend operations based on imminent threats posed to firefighter safety, given an incident or planned event that contains threats to firefighter safety, an incident management structure, risk management criteria, and applicable SOP/Gs, so that the hazard is identified, notice to suspend operations is communicated, action is taken to protect firefighter safety, and this information is communicated to the IC. **5.2.5** Monitor and determine the incident scene conditions, given an incident or planned event, so that the ISO can report to the IC on the status of hazards and risks to members. **5.2.6** Monitor the accountability system, given an incident or planned event, an IMS, personal identification devices, radios, and applicable SOP/Gs, so that it can be determined that the accountability system is being utilized as designed, all relevant positions and functions are implemented, and any noted deficiencies are communicated to the IC. **5.2.7** Determine hazardous incident conditions and advise the IC to establish or modify control zones, given an incident, so that the incident control zones are communicated to members and entry into the hazardous area is controlled. **5.2.8** Identify motor vehicle incident scene hazards, given an apparatus and temporary traffic control devices, an incident or planned event, so that actions to mitigate the hazards as described in Section 10.7 of this standard are taken to protect member safety. **5.2.9** Monitor radio transmissions, given an incident or planned event with radio transmissions, so that communication barriers are identified and the possibility for missed, unclear, or incomplete communications is corrected. **5.2.10** Identify the incident strategic requirements (e.g., fire, technical search and rescue, hazmat), the corresponding hazards, the size, complexity, and anticipated duration of the incident, including the associated risks, given an incident or planned event, an IMS, and applicable SOP/Gs, so that the ISO can determine the need for assistant ISOs and/or technical specialists and make the recommendations to the IC. **5.2.11** Determine the hazards associated with the designation of a landing zone and interface with helicopters, given an incident or planned event that requires the use of a helicopter and landing zone, so that the IC can be informed of special requirements and the landing can be executed in a safe manner. **5.2.12** Notify the IC of the need for intervention resulting from an occupational exposure to atypical stressful events, given an incident or planned event and an awareness of incidents that can cause incident stress, so that members' psychological health and safety can be protected.

(continues)

Table C.1(b) *Continued*

	5.2.13 Determine hazardous energy sources that can affect responder health and safety, given an incident or planned event, an active IAP with assigned responders, and an opportunity to perform environmental and operational reconnaissance, so that risks to personnel are identified, reduced, or eliminated; hazard information is relayed to IC staff and ancillary agencies responsible for the hazardous energy source; appropriate zones are established and marked; and personnel operating at the scene are briefed on the hazardous energy control zone. **5.2.14** Monitor conditions, including weather, firefighter activities, and work cycle durations, given an incident or planned event, so that the need for rehabilitation can be determined, communicated to the IC, and implemented to ensure firefighter health and safety. **5.2.15** Identify incident environmental conditions and contaminates, given an incident or planned event, so that identified hazards can be communicated to the IC and division and/or group supervisors, and the need for contamination control procedures for PPE, personnel hygiene, and utilized equipment can be determined and implemented, prior to incident departure, to help prevent continued exposure and cross contamination from known and potential contaminants.
Fire Suppression Operations This duty involves the specific activities of an ISO at a fire suppression incident.	**5.3.1** Determine incident environmental and operational factors and confirm the establishment of rapid intervention crew (RIC) and evaluate the need to increase RIC capability, given an incident or planned event that includes one or more immediately dangerous to life and health (IDLH) elements, responders engaged in tactical operations, a pre-assigned RIC, and an IAP, so that a recommendation is offered to the IC. **5.3.2** Communicate fire behavior, building access/egress issues, collapse, and hazardous energy issues to established RICs, given an incident or planned event, so that RIC team leaders are aware of the observations and concerns of the ISO. **5.3.3** Identify and estimate building/structural collapse hazards, given a building fire incident, a building collapse incident, reconnaissance opportunity, and established AHJ pre-incident building plan information, so that the identified collapse hazard can be communicated to the IC and tactical-level management units; judgment is offered to the IC for the establishment of control zone(s); personnel are removed from collapse zone dangers; and appropriate adjustments are made to the IAP by the IC to improve member safety. **5.3.4** Determine flashover and hostile fire event potential at building fires, given an incident, so that risks are identified and communicated to the incident commander and tactical-level management units, and adjustments are made to strategy and tactics to improve safety. **5.3.5** Determine fire growth and blow up, given wildland and cultivated vegetation fires, so that information can be communicated to the IC and tactical-level management components, and adjustments made to the IAP to improve member safety.
Technical Search and Rescue Operations This duty involves determining the need for an ISO specifically trained for technical search and rescue operations, with preparing a safety plan for the operation and giving an incident briefing.	**5.4.1** Determine the need for a search and rescue technician–trained ISO or assistant ISO, given a technical search and rescue incident; CFR 1910.146; NFPA 1006; and AHJ SOP/Gs for technical search and rescue operations, so that the IC can appoint an assistant ISO or a search and rescue technician. **5.4.2** Prepare a safety plan that identifies corrective or preventive actions, given a technical search and rescue incident, an IAP that includes situation and resource status information, an incident safety analysis form (ICS form 215A or its equivalent), weather condition information, special technical data (such as safety data sheets and topographical information, blueprints, and building drawings), and predetermined incident information, so that safety data are obtained, an incident safety plan is developed with coordinating documentation, elements of the plan are incorporated in the IAP, changes in incident safety conditions are noted and reported, judgment is offered to the IC for the establishment of control zone(s) and exclusion zone(s), safety and appropriate PPE elements are met, and assistant ISOs are appointed as necessary.

(continues)

Table C.1(b) *Continued*

	5.4.3 Deliver a safety briefing for technical search and rescue incident response members, given a technical search and rescue incident, so that critical information such as expected hazards, PPE requirements, established zones, emergency procedures, air monitoring, medical surveillance, and chain-of-command elements are communicated.
Hazardous Materials Operations This duty involves determining the need for an ISO specifically trained for a hazardous material incident, establishing control zones, with preparing a safety plan for the incident, and giving an incident briefing.	**5.5.1** Determine the need for a hazardous materials technician-trained ISO or assistant ISO, given a hazardous materials incident, 29 CFR 1910.120; NFPA 472 and NFPA 1072, as incorporated in the 2022 edition of NFPA 470; and AHJ SOP/Gs for hazardous materials operations, so that the IC can appoint an assistant ISO or a hazardous materials technician. **5.5.2** Prepare a safety plan that identifies corrective or preventive actions, given a hazmat incident, IAP that includes situation and resource status information, an incident safety analysis form (ICS form 215A or its equivalent), weather condition information, special technical data (such as safety data sheets and topographical information, blueprints, and building drawings), and predetermined incident information, so that safety data are obtained, an incident safety plan is developed with coordinating documentation, elements of the plan are incorporated in the IAP, changes in incident safety conditions are noted and reported, judgment is offered to the IC for the establishment of control zone(s) and exclusion zone(s), safety and PPE elements of 29 CFR 1910.120 are met, and assistant ISOs are appointed as necessary. **5.5.3** Deliver a safety briefing for hazardous materials incident response members, given a hazmat incident or scenario, so that critical information such as expected hazards, PPE requirements, established zones, decontamination procedures, emergency procedures, air monitoring, medical surveillance, and chain-of-command elements are communicated. **5.5.4** Identify that hazardous materials incident control zones have been established and communicated to personnel on the scene, given a hazardous materials incident and SOP/Gs, so that responders can identify marked control zones, which must be inclusive of no-entry zones, hot zones, hazard reduction zones, support zones, and corridors.
Accident Investigations and Review This duty involves conducting a safety and health investigation.	**5.6.1** Conduct a safety and health investigation, given an incident or planned event involving an occupational injury, illness, exposure, fatality, near miss, or other potentially hazardous condition involving fire department members, fire department vehicles, apparatus, equipment or facilities, SOP/Gs, health and safety policies, so that the facts and the root cause of the incident are correctly identified, deviations from SOP/Gs established by the AHJ and health and safety policies are noted, recommendations are made for preventing similar losses in the future, and all information gathered in the investigation is documented, reported, and recorded according to policies established by the AHJ.
Post-Incident Analysis (PIA) This duty involves preparing a written post-incident analysis and reporting observations, concerns, and recommendations.	**5.7.1** Prepare a written post-incident analysis (PIA) from the ISO perspective, given a witnessed incident, exercise, or planned event, so that safety and health issues, best safety practices, deviations from SOP/Gs established by the AHJ, and recommendations for future events are documented. **5.7.2** Report observations, concerns, and recommendations, given a witnessed incident or planned event and PIA group setting, so that that safety and health issues, best safety practices, deviations from SOP/Gs established by the AHJ, and recommendations for future events are communicated to the AHJ.

Annex D National Fallen Firefighters Foundation (NFFF)

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

D.1 "16 Firefighter Life Safety Initiatives." In 2004, the National Fallen Firefighters Foundation (NFFF) held an unprecedented gathering of the fire service leadership when more than 200 individuals assembled in Tampa, Florida, to focus on the troubling question of how to prevent line-of-duty deaths and injuries. Every year approximately 100 firefighters lose their lives in the line of duty in the United States — about 1 every 80 hours. Every identifiable segment of the fire service was represented and participated in the summit.

The first Firefighter Life Safety Summit marked a significant milestone, because it not only gathered all segments of the fire service behind a common goal, but it also developed the "16 Firefighter Life Safety Initiatives." The summit attendees agreed that the "16 Firefighter Life Safety Initiatives" serve as a blueprint to reduce line-of-duty deaths and injuries. In 2014, a second Life Safety Summit was held and more than 300 fire service leaders gathered. At the second Firefighter Life Safety Summit, the "16 Firefighter Life Safety Initiatives" were reaffirmed as being relevant to reduce line-of-duty deaths and injuries.

D.2 NFFF's "16 Firefighter Life Safety Initiatives."

(1) Define and advocate the need for a cultural change within the fire service relating to safety, incorporating leadership, management, supervision, accountability, and personal responsibility.
(2) Enhance the personal and organizational accountability for health and safety throughout the fire service.
(3) Focus greater attention on the integration of risk management with incident management at all levels, including strategic, tactical, and planning responsibilities.
(4) All firefighters must be empowered to stop unsafe practices.
(5) Develop and implement national standards for training, qualifications, and certification (including regular recertification) that are equally applicable to all firefighters based on the duties they are expected to perform.
(6) Develop and implement national medical and physical fitness standards that are equally applicable to all firefighters, based on the duties they are expected to perform.
(7) Create a national research agenda and data collection system that relates to the initiatives.
(8) Utilize available technology wherever it can produce higher levels of health and safety.
(9) Thoroughly investigate all firefighter fatalities, injuries, and near misses.
(10) Grant programs should support the implementation of safe practices and/or mandate safe practices as an eligibility requirement.
(11) National standards for emergency response policies and procedures should be developed and championed.
(12) National protocols for response to violent incidents should be developed and championed.
(13) Firefighters and their families must have access to counseling and psychological support.
(14) Public education must receive more resources and be championed as a critical fire and life safety program.
(15) Advocacy must be strengthened for the enforcement of codes and the installation of home fire sprinklers.
(16) Safety must be a primary consideration in the design of apparatus and equipment.

Annex E Organization (NFPA 1521)

This annex is not a part of the requirements of this NFPA document unless specifically adopted by the jurisdiction.

E.1 Assignment of the Health and Safety Officer.

E.1.1 The fire chief, the fire chief's designated representative, or the AHJ shall appoint a fire department health and safety officer (HSO) to administer and manage the fire department occupational safety and health program.

E.1.2 The health and safety officer shall report directly to the fire chief or to the fire chief's designated representative.

E.1.3 Assistant health and safety officers shall be appointed when the activities, size, or character of the fire department warrants extra safety personnel.

E.1.4 The health and safety officer shall recommend the utilization of technical specialists based on the occupational safety and health needs of the fire department.

E.2 Authority of the Health and Safety Officer.

E.2.1 The health and safety officer shall have the responsibility to identify and cause correction of health and safety hazards.

E.2.2 The health and safety officer shall have the following authority:

(1) Cause immediate correction of situations that create an imminent hazard to members
(2) Attend fires and other fire department activities for the purpose of operational review
(3) Investigate accidents, injuries, and near misses

E.2.3 Where nonimminent hazards are identified, a health and safety officer shall develop actions to correct the situation within the administrative process of the fire department.

E.2.4 The health and safety officer shall have the authority to bring notice of such hazards to whoever has the ability to cause correction.

E.3 Assignment of the Incident Safety Officer.

E.3.1 The fire department shall have a predesignated incident safety officer system to ensure that a separate incident safety officer (ISO), independent of the incident commander (IC) is appointed and responds automatically to predesignated incidents.

E.3.2 If the predesignated incident safety officer is not available, the incident commander shall appoint an incident safety officer.

E.3.3 An additional assistant incident safety officer(s) shall be appointed when the activities, size, or need of the incident warrants extra safety personnel.

E.3.4 Technical specialists shall be appointed by the incident commander based on the incident type, technical requirements of the incident, or as recommended by the incident safety officer or other members of the command staff.

E.4 Authority of the Incident Safety Officer.

E.4.1 At an emergency incident, the incident commander shall be responsible for the overall management of the incident and the safety of all members involved at the scene.

E.4.2 At an emergency incident where activities are judged by the incident safety officer as posing an imminent threat to firefighter safety, the incident safety officer shall have the authority to stop, alter, or suspend those activities.

E.4.3 The incident safety officer shall immediately inform the incident commander of any actions taken to correct imminent hazards at the emergency scene.

E.4.4 At an emergency incident where an incident safety officer identifies unsafe conditions, operations, or hazards that do not present an imminent threat to firefighters, the incident safety officer shall take appropriate action through the incident commander to mitigate or eliminate the unsafe condition, operation, or hazard at the incident scene.

E.4.5 An assigned assistant incident safety officer(s) shall be granted the authority authorized in E.4.2.

Annex F Sample ISO Incident Checklists (NFPA 1521)

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

F.1 As an aid to the users of this document, examples of ISO checklists are provided. It is suggested that the ISOs develop their own form or checklist to reflect their work organization and environment.

Figure F.1(a) is an ISO incident checklist. Figure F.1(b) is a structure fire safety report form.

Figure F.1(c) is an EMS incident safety report form. Figure F.1(d) is a marine incident safety report form. Figure F.1(e) is a technical search and rescue incident safety report form. In addition to the base report, there are attachments for specific types of technical search and rescue incidents. These incidents include confined space *[see Figure F.1(f)]*, machinery or vehicle *[see Figure F.1(g)]*, rope *[see Figure F.1(h)]*, structural collapse *[see Figure F.1(i)]*, water *[see Figure F.1(j)]*, and trench *[see Figure F.1(k)]*.

ISO INCIDENT CHECKLIST

Safety officer: _____ Incident number: _____ Date: _____

Response type: _____ Location: _____

Incident commander: _____ Sector chief(s): _____

Time of incident (1): _____ Safety on location (2): _____ Elapsed time (2-1): _____

ISO Duties

(1) Report to incident commander. Discuss incident (incident strategy, plan of action, safety plan).

(2) Walk the incident and establish a perimeter, checking the following items as they relate to safety. Advise command staff of risk assessment of incident. **Relate any immediate safety concerns to incident commander.**

✓ = OK ✕ = Issue ◯ Circle applicable category

Strategy and Tactics

- ❑ Offensive/defensive/marginal attack
- ❑ Crews following incident commander strategy?
- ❑ Ventilation (vertical/horizontal, fans, crew location, means of egress — windows/doors, smoke conditions — volume/color/force — as related to safety of personnel)
- ❑ Incident layout (site drawing, crew locations, rapid intervention team)
- ❑ Risk management (Is the action necessary?)

Hazards

- ❑ Utilities (hydro, natural gas, LP-Gas tanks)
- ❑ Environmental (heat, cold, ice, snow, rain, wind)
- ❑ Structural conditions (roof, walls, floors, facades, signs, other construction features)

(3) After the initial incident assessment, continue to observe all listed items as well as others that might affect the safety of personnel, including the following *(periodically check back to incident commander for update briefing)*:

- ❑ Accountability (set-up, Phase I, Phase II, Phase III, PAR, rapid intervention team)
- ❑ PPE (turnouts, hoods, helmet, shields, gloves, boots, SCBA)
- ❑ Communications (radios, face-to-face, crews, sectors, command)
- ❑ Hazard control zones (No-entry zone(s): red/white, hot zone: red, warm zone: yellow, cold zone: green)
- ❑ Rehabilitation (location, fluids, food, crew rotation, manpower, shelter, heat/cooling, EMS)
- ❑ Ladders (selection, placement, secured, hazards — wires/footing, two means of egress)
- ❑ Equipment use (selection/placement of hose lines, water supply, tools, safety equipment, lighting)
- ❑ Apparatus (placement, collapse/heat zone, staging, effectiveness, enough resources)

(4) Exercise emergency authority to stop or prevent imminent unsafe acts — notify incident commander immediately —ensure all personnel are aware of any special circumstances or danger.

NFPA 1550 (p. 1 of 2)

FIGURE F.1(a) Example of an ISO Incident Checklist. ***(Source: Ottawa Fire Services — Safety Division, Ottawa, Canada.)***

ISO INCIDENT CHECKLIST *(continued)*

(5) Other considerations:

(a) In other than imminent unsafe acts, individuals or crews violating OFS policies and procedures will be addressed through the incident commander or through the post-incident analysis process.

(b) Be aware of the need for addressing critical incident stress if necessary as per SOP.

(c) In the event of accident/injury investigation, ensure the following is considered: scene preservation, critical injury protocol, seize PPE/equipment, document the scene with digital pictures, scene sketch (locations, measurements, etc.), witnesses, and statements.

(6) Resources

❑ Inspector ❑ Police ❑ EMS ❑ Hydro ❑ Gas Co. ❑ Water branch
❑ OC Transpo ❑ Engineer ❑ Heavy equipment ❑ Hazardous materials team

Scene Sketch

(Consider including direction, street names, apparatus, hose lines, hydrants, etc.)

NFPA 1550 (p. 2 of 2)

FIGURE F.1(a) ***Continued***

Fulton County Fire Department

STRUCTURE FIRE SAFETY REPORT

This form is intended to communicate safety-related issues regarding a Fulton County Fire Department incident involving a fire inside or adjacent to a structure of a magnitude requiring a full residential or commercial response. The shaded areas are major categories with subcategories for various safety-related issues. This form is not intended to be used as a strategy or tactics document, although many of the issues covered will impact strategic or tactical decisions.

Incident

- **Number.** The FCFD incident number assigned by emergency communications.
- **Operational Period (Date/Time).** The date and dispatch time of the incident as logged by emergency communications.

Communications

- **On-scene Time/Tactical Mode.** An indication upon arrival and at 20-, 40- and 60-minute intervals whether suppression operations are offensive (off.) or defensive (def.)
- **Radio transmissions clearly transmitted and repeated?** This includes all radio communications. If the answer is NO, explain in the Narrative. If radio or equipment problems hinder communications, this issue should be addressed in the Narrative.

Incident Management Facility Locations

- **Command Post.** Required for **all** incidents where command is established. Identification means it is identified by radio and has the green command post light activated.
- **Base.** The location for all out-of-service resources, rehab, and the air unit. Should be utilized any time rehab is established or when members will need more than two SCBA bottles to control the fire. Identification means that base is identified by radio.
- **Staging.** The location for resources available to be deployed within 3 minutes. Should be utilized at the discretion of the incident commander. Identification means that staging is identified by radio.

All Other Sections

Did any of the items listed present a safety hazard to fire fighters? Answer the question stated. If not applicable, mark **N/A**. If the answer to any question is **NO**, explain in the Narrative of the form.

NFPA 1550 (p. 1 of 4)

FIGURE F.1(b) Example of a Structure Fire Safety Report. *(Source: Fulton County Fire Department, Fulton County, GA.)*

Fulton County Fire Department

STRUCTURE FIRE SAFETY REPORT

INCIDENT		
Number:	Address:	Date/Time:

COMMUNICATIONS							
On-scene time/ Tactical mode	Off. _____ Def. _____	20 min:	Off. _____ Def. _____	40 min:	Off. _____ Def. _____	60 min:	Off. _____ Def. _____

Radio transmissions clearly transmitted and repeated? ❑ YES ❑ NO (If NO, explain in Narrative.)

INCIDENT MANAGEMENT FACILITY LOCATIONS		
Command post:	Base:	Staging:

HEALTH HAZARDS (If NO, explain in Narrative.)					
Hazard	**Mitigation**	**YES**	**NO**	**N/A**	**Time**
Contaminant exposure	Proper PPE utilized by all members?				
	Gross decon conducted?				
Respiratory hazards	SCBA used by **all** in an IDLH area?				
	All members rehabbed after 2 bottles?				
	SCBA utilized properly on the roof?				
	SCBA used until CO below 35 ppm?				

STRUCTURE-SPECIFIC HAZARDS (If NO, explain in Narrative.)					
Hazard	**Mitigation**	**YES**	**NO**	**N/A**	**Time**
Arrangement	Pre-incident survey consulted?				
Ventilation	Effective ventilation conducted?				
Roof construction	Identified?				
Floor structure	Identified?				
Levels below grade	Identified?				
Levels above grade	Identified?				
Utilities	Identified? Locked out?				
Asbestos concerns	Identified?				

NFPA 1550 (p. 2 of 4)

FIGURE F.1(b) ***Continued***

Fulton County Fire Department

STRUCTURE FIRE SAFETY REPORT

HUMAN RESOURCE MANAGEMENT CONCERNS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Accountability	Accountability system in place?				
	Utilized according to policy?				
	PAR after fire extinguished?				
Incident management	ICS utilized?				
Span of control	Span of control maintained (scale of 1–5)?				
Rapid intervention	Crew identified?				
Hazard area(s)/zone(s)	Identified by flagging tape?				
Team integrity	Maintained in the hazard area?				
Responder fatigue	Rehab initiated?				
Responder EMS needs	ALS unit available?				
Unit rotation	Plan developed?				

PHYSICAL HAZARDS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Access/egress	Secondary access identified?				
Atmospheric	Air monitored by truck company?				
Thermal	Hot spots checked with imager?				
Traffic	Controls in place?				
Hazardous materials	Mitigated by Ops level members?				
Structural stability	Collapse zone identified?				
	Floor collapse potential identified?				
	Roof collapse potential identified?				
	Wall collapse potential identified?				
Other					

NFPA 1550 (p. 3 of 4)

FIGURE F.1(b) *Continued*

Fulton County Fire Department

STRUCTURE FIRE SAFETY REPORT

EMERGENCY ACTIONS REQUIRED

(Any of the following marked "YES" must be explained in the Narrative.)

Hazard	Brief Explanation	YES	NO	N/A	Time
Task terminated?					
Emergency traffic?					
Withdrawal required?					
Abandonment required?					

NARRATIVE

REPORT REVIEW

Name of incident commander notified at the scene:	Date:	Time:
Attachments to safety report:		
Developed by incident safety officer:	Date:	Time:

NFPA 1550 (p. 4 of 4)

FIGURE F.1(b) ***Continued***

Fulton County Fire Department

EMS INCIDENT SAFETY REPORT

INCIDENT	
Number:	Date/Time:
Description:	Location:

INCIDENT MANAGEMENT FACILITY LOCATIONS		
Command Post:	Base:	Staging:

HEALTH HAZARDS

Hazard	Mitigation	YES	NO	N/A	Time
Contaminant exposure	Gloves used?				
	Full EMS PPE utilized?				
Fire suppression/extrication	Proper PPE utilized?				
Sharps	Proper disposal techniques utilized?				
Biomed waste	Proper disposal techniques utilized?				

HUMAN RESOURCE MANAGEMENT CONCERNS

Hazard	Mitigation	YES	NO	N/A	Time
Accountability	Accountability system in place?				
Incident management	ICS utilized?				
	Incident commander identified?				
	EMS group supervisor identified?				
Hazard area(s)/zone(s)	Identified?				
Span of control	Span of control (scale of 1–5)?				
Responder EMS needs	ALS unit available?				
Unit rotation	Plan developed?				
Lifting patients	Proper lifting techniques observed?				

NFPA 1550 (p. 1 of 2)

FIGURE F.1(c) Example of an EMS Incident Safety Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

EMS INCIDENT SAFETY REPORT

PHYSICAL HAZARDS

Hazard	Mitigation	YES	NO	N/A	Time
Scene management	Scene secured to unauthorized persons?				
Coordinated tactical plan	Plan communicated?				
Electrical	Power sources secured?				
Hazardous materials	Mitigated by operations level members?				
Traffic	Controls in place?				
	Law enforcement requested to assist?				
Fire suppression	Hose line(s) in place?				
	Extinguisher(s) in place?				

NARRATIVE

REPORT REVIEW

Incident commander notification of concerns at the scene:	Date:	Time:
Attachments to report:		
Incident safety officer:	Date:	Time:

NFPA 1550 (p. 2 of 2)

FIGURE F.1(c) ***Continued***

Fulton County Fire Department

MARINE INCIDENT SAFETY REPORT

INCIDENT		
Incident:	Incident commander:	Date Prepared:
Pier # (Address):		Time Prepared:

COMMUNICATIONS	
Command (radio) channel:	Tactical (radio) channel:
Command phone:	FAX:

SITE INFORMATION	
Incident type:	Secondary access/egress:
Primary access:	Contact name/phone:
Yard office:	Alternate phone:

INCIDENT MANAGEMENT FACILITY LOCATIONS	
Command post:	Base:
Staging:	Marine team staging:

INCIDENT ORGANIZATION	
Incident commander:	Safety officer:
Marine Div/Gr Supv:	Marine safety officer:
Vessel rep:	USCG rep:

HUMAN RESOURCE MANAGEMENT CONCERNS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Accountability	Accountability system in place?				
Span of control	Span of control (scale of 1–5)?				
Responder fatigue	Rehab initiated?				
Unit rotation	Plan developed?				
Hazard area(s)/zone(s)	Identified?				

NFPA 1550 (p. 1 of 2)

FIGURE F.1(d) Example of a Marine Incident Safety Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

MARINE INCIDENT SAFETY REPORT

VESSEL-SPECIFIC HAZARDS (If NO, attach explanation.)

Hazard	Mitigation	YES	NO	N/A	Time
Vessel stability	Stability monitoring?				
Vessel access	Primary identified?				
	Secondary identified?				
Arrangement	Vessel plans acquired?				
Hazardous cargo	Cargo manifest acquired?				
Electrical	Power plant secured?				
Confined spaces	Confined space tech. on scene?				

PHYSICAL HAZARDS (If NO, attach explanation.)

Hazard	Mitigation	YES	NO	N/A	Time
Depth of water	Life jackets available?				
Tide/current	Tide tables checked?				
Hazmat mitigation	Hazmat tech. available?				
Chemical/contaminant exposure	Proper PPE identified?				
Weather	Forecast obtained?				
Wind direction/speed	Upwind escape route identified?				
Atmospheric	Air monitoring commenced?				

PLAN REVIEW

Attachments to safety plan:

Developed by safety officer:	Date:	Time:
Approved by incident commander:	Date:	Time:

NFPA 1550 (p. 2 of 2)

FIGURE F.1(d) *Continued*

Fulton County Fire Department

TECHNICAL RESCUE INCIDENT SAFETY REPORT

Incident name:	Operational period (date/ time):

INCIDENT TYPE (Check all that apply.)

❑ Confined space	❑ Rope	❑ Water
❑ Machinery/vehicle	❑ Structural collapse	❑ Trench

HEALTH HAZARDS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Atmospheric	Atmosphere monitored?				
	Space ventilated?				
	Respiratory protection utilized?				
	Respiratory protection downgraded?				
Communications	Secondary form identified?				
	Written plan developed?				
Contaminant exposure	Contaminant identified?				
	PPE utilized?				
	Decon conducted?				
	Written records maintained?				
Stress	Debriefing/defusing scheduled?				

PHYSICAL HAZARDS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Access/egress	Secondary access identified?				
Arrangement	Floor/plot/area plan available?				
Electrical	Utilities locked/tagged out?				
Hazmat	Awareness of Ops level materials?				
Thermal	Fire suppression measures taken?				
Weather	Forecast obtained?				

NFPA 1550 (p. 1 of 3)

FIGURE F.1(e) Example of a Technical Search and Rescue Incident Safety Report. *(Source: Fulton County Fire Department, Fulton County, GA.)*

Fulton County Fire Department

TECHNICAL RESCUE INCIDENT SAFETY REPORT

HUMAN RESOURCE MANAGEMENT (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Accountability	Accountability system in place?				
Coordinated tactical plan	Plan communicated?				
Hazard area(s)/zone(s)	Identified?				
Management	Incident command system implemented?				
Rapid intervention	Crew identified?				
Responder fatigue	Rehab initiated?				
Responder EMS needs	ALS unit available?				
Responder rotation	Plan developed?				
Span of control	Span of control (scale of 1–5)?				
Team integrity	Maintained in the hazard area?				

EMERGENCY ACTIONS REQUIRED (If required, explain in Narrative.)

Hazard	Brief Explanation	YES	NO	N/A	Time
Task terminated					
Mayday transmitted					
Withdrawal required					
Abandonment required					

PLAN REVIEW

Incident commander notification of concerns at the scene:	Date:	Time:

Attachments to safety plan: ❑ Narrative ❑ Structural collapse ❑ Rope ❑ Confined space ❑ Trench ❑ Transp/machinery ❑ Water

Developed by incident safety officer:	Date:	Time:

NFPA 1550 (p. 2 of 3)

FIGURE F.1(e) ***Continued***

Fulton County Fire Department

TECHNICAL RESCUE INCIDENT SAFETY REPORT

NARRATIVE

NFPA 1550 (p. 3 of 3)

FIGURE F.1(e) *Continued*

Fulton County Fire Department

TECHNICAL RESCUE — CONFINED SPACE

TYPE OF EVENT

Location	❑ Vault	❑ Tank	❑ Service area	❑ Marine vessel
	❑ Cave/pit	❑ Structure	❑ Tunnel	❑ Other: _____

Description of space:

SPECIFIC HAZARDS

Hazard	Brief Explanation	YES	NO	N/A	Time
Cause of incident identified.					
Equipment/utilities secured.					
Rescue area identified.					
Rescue scene secured.					
Permit posted.					
Access maintained.					
Rescue entrant(s) identified.					
Back-up entrant(s) identified.					
O_2 level monitored.					
LEL level monitored.					
Toxicity level monitored.					
Space confirmed free of hazmat.					
Space ventilated.					
Adequate air supplies available.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

NFPA 1550

FIGURE F.1(f) Example of a Confined Space Rescue Supplemental Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

TECHNICAL RESCUE — MACHINERY/VEHICLE

TYPE OF EVENT

Location	❑ Commercial site		❑ Residential site	
	❑ Transportation corridor		❑ Other: _____	
Type of transport/machinery	❑ Auto	❑ Truck	❑ Bus	❑ Construction
	❑ Bike	❑ Motorcycle	❑ Aircraft	❑ Other: _____

SPECIFIC HAZARDS

Hazard	Brief Explanation	YES	NO	N/A	Time
Incident command system established.					
Cause of incident identified.					
Rescue area identified.					
Rescue scene secured.					
Power source identified and controlled.					
Vehicle/machine de-energized.					
Equipment locked out/tagged out.					
Utilities tagged/locked out.					
Vehicle stabilized.					
Contents/cargo identified.					
Extrication plan communicated.					
Rescue entrant(s) identified.					
Back-up entrant(s) identified.					
Alternate extrication plan in place.					
Minimum number of rescuers utilized.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

NFPA 1550

FIGURE F.1(g) Example of a Machinery or Vehicle Rescue Supplemental Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

TECHNICAL RESCUE — ROPE

TYPE OF EVENT

Type of rescue	❑ Low angle	❑ High angle	Feet above/below grade:	
Location	❑ Structure	❑ Equipment	❑ Road/bridge	❑ Cliff/bluff
	❑ Below grade	Other: _____		

SPECIFIC HAZARDS

Hazard	Brief Explanation	YES	NO	N/A	Time
Cause of incident identified.					
Equipment/utilities secured.					
Rescue area identified.					
Rescue scene secured.					
Fall protection utilized.					
Secure anchor points selected.					
Main line staffed continuously.					
Belay line staffed continuously.					
Knots and bends safety checked.					
Hardware secured.					
Fall area secured.					
Litter attachments safety checked.					
Haul team(s) briefed on tactical plan.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

NFPA 1550

FIGURE F.1(h) Example of a Rope Rescue Supplemental Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

TECHNICAL RESCUE — STRUCTURAL COLLAPSE

COLLAPSE EVENT

Type of collapse	❑ "V"	❑ Pancake	❑ Lean-to	❑ Cantilever
	❑ "A" frame	❑ Other: _____		
Location of collapse	❑ Roof	❑ Floor	❑ Wall	❑ Total
Type of construction involved	❑ Wood frame	❑ Steel	❑ Concrete	❑ Masonry
	❑ Heavy timber	❑ Other: _____		

SPECIFIC HAZARDS

Hazard	Brief Explanation	YES	NO	N/A	Time
Cause identified.					
Secondary collapse potential identified?					
Rescue area identified.					
Collapse zone identified.					
Primary access maintained.	Shoring installed?				
	Shoring reinforced.				
Escape route identified.					
Water hazard identified.					
Overall structure stabilized.					
Rescue area identified.					
Rescue scene secured.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

NFPA 1550

FIGURE F.1(i) Example of a Structural Collapse Rescue Supplemental Report. *(Source: Fulton County Fire Department, Fulton County, GA.)*

Fulton County Fire Department

TECHNICAL RESCUE — WATER

EVENT					
Type of water	❑ Salt	❑ Fresh	❑ Ice	❑ Storage	
Watercraft	❑ None	❑ Boat	❑ Ship	❑ Barge	❑ Jet ski
Type of incident	❑ Swimming	❑ Vessel problem		❑ Other: _____	

SPECIFIC HAZARDS					
Hazard	**Brief Explanation**	**YES**	**NO**	**N/A**	**Time**
Cause of incident identified.					
Depth of water known.					
Sources of power locked out/tagged out.					
Minimum number of rescuers.					
Throw, Tow, Row options explored.					
Rescuers secured for land-based rescue.					
Rescue craft at or near carrying capacity.					
Rescue vs. recovery mode identified.					
Flotation worn devices in proximity to water.					
FFs operating within the scope of their training.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

NFPA 1550

FIGURE F.1(j) Example of a Water Rescue Supplemental Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

TECHNICAL RESCUE — TRENCH

TYPE OF EVENT		
Location	❑ Construction site	❑ Residential site
	❑ Other site: _____	
Approximate size	Trench:	Excavation:
	Depth:	Intersecting? ❑ Yes ❑ No

SPECIFIC HAZARDS

Hazard	Brief Explanation	YES	NO	N/A	Time
Cause of incident identified.					
Equipment locked out.					
Utilities tagged/locked out.					
Rescue area identified.					
Rescue scene secured.					
Spoil pile secured.					
Access maintained.					
Rescue entrant(s) identified.					
Back-up entrant(s) identified.					
Panels safety checked.					
Shores safety checked.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

NFPA 1550

FIGURE F.1(k) Example of a Trench Rescue Supplemental Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Annex G Safety Officer's Post-Incident Analysis Report (NFPA 1521)

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

G.1 The following material is provided by the Ottawa Fire Services Safety Division. Section G.2 provides a template for a safety officer's post-incident analysis (PIA) report. Section G.3 provides guidance on writing the report.

G.2 Safety Officer's Post-Incident Analysis Report Template. As a result of all major incidents, or at the request of a senior officer, a Safety Division Incident Report will be prepared. The report will be a comprehensive document outlining the actions of the Ottawa Fire Services at the incident and will include the topics addressed in G.2.1 through G.2.5.

G.2.1 Introduction. The introduction states the subject matter to be discussed, the purpose, and the organization and scope of the report.

The importance of the introduction is to prepare the reader to receive what the writer intends to present. The introduction relates the subject matter of the report in a convincing and clear manner. Specifically, the introduction presents the precise subject to be presented, indicates the reasons for presenting it, and describes the scope and organization of how the report will be laid out.

The introduction should not be longer than one page in length. If the subject, objectives, and method of presentation are not complicated, one or two paragraphs will suffice. If a considerable amount of background information is necessary, try moving it to a separate section of the report (e.g., background information).

G.2.2 Sequence of Events. The intent of the sequence of events is to provide a clear, concise chronology of the major actions that took place over time at the incident.

While objectivity is an essential component of the report, seeing all actions that occurred at the incident would be difficult for the writer. Accuracy can be improved by corroborating events with others who were present at the incident. This corroboration can be accomplished readily during the post-incident analysis.

Try to be direct and concise, eliminating anecdotal (hearsay) information and irrelevant details. If specific information is required for explanation or interest, include a more detailed chronology of events as an appendix.

Separate groups or sequences of events into logical sections or periods of time. If specific, important actions took place, pinpoint key times to the nearest minute if possible.

If referring to actions that the writer has performed, use the first person in describing them. When referring to the actions of others, use the third person perspective.

G.2.3 Safety Issues. The safety issues section of the report should provide a detailed description of the hazards present at the incident, the potential for accidents/injuries, accidents/injuries that did occur, safety violations, remedial steps taken, and further action needed.

G.2.3.1 Hazards. Use the hazards section to describe the hazards that were present at the incident scene. Show the potential for danger that these hazards posed and any safety concerns associated with them.

Some subjects for consideration are weather/incident conditions, use of PPE, hazard zones, potential for collapse, confined space, hazardous materials, communications, incident command, use of equipment and apparatus, crew accountability, rehabilitation, near misses, public utilities (gas, hydro), and infection control.

G.2.3.2 Injuries. If there were injuries, document them in the injuries section and be sure to include all possible contributing factors. Describe the events leading up to the accidents and include administrative forms and photographs as an appendix if required.

G.2.3.3 Safety Violations. Document violations of safety policies and procedures and any other actions that had the potential to cause a safety hazard to personnel on the scene.

Explain remedial actions taken to point out violations and reduce safety concerns.

Try to find out why violations occurred. Were there extenuating circumstances? Did the actions of personnel at the scene start a chain of events that resulted in safety violations?

Describe further actions needed to resolve a situation and prevent further occurrences.

G.2.4 Discussion. The discussion should be an objective analysis of the incident with respect to the actions taken by the Ottawa Fire Services and the safety issues associated with those actions.

This is perhaps the most difficult section of the report to write. The opportunity is presented to synthesize objectively what has been detailed in the report so far.

Discuss the implications and results of the actions that took place during the incident with the objective of presenting a "complete" picture of what occurred. Including what went right is as important as well as what went wrong. Make absolutely clear the distinction between fact and opinion.

When discussing your conclusions make sure to state their limitations.

G.2.5 Recommendations. A prioritized list of recommendations has the potential to increase safety at incidents, reduce accidents and injuries, and improve the overall performance of the department at incidents.

The objective of making recommendations in a report of this nature is to offer solutions for improving safety at the scene, reduce injuries to personnel, and increase awareness of incident safety by the members of the Ottawa Fire Services.

List your clearly stated recommendations in order of decreasing priority. If possible, offer solutions on how to carry out the recommendations through the modification or addition of policies or procedures.

G.3 Writing the Report.

G.3.1 Report Style. While difficult to define, style establishes the readability of reports. An acceptable style will encourage the intended audience to read the report. Styles differ from writer to writer, but general report requirements must be met by any writing style to produce a good report.

G.3.2 Requirements of Reports. Whatever the specific style used to prepare a technical report, four general requirements must be met to produce good reports: *clarity*, *conciseness*, *continuity*, and *objectivity*.

G.3.3 Clarity. A report of this nature must express the exact meaning of the writer to the reader. To do this, text must be clear and unambiguous. Uncommon terms must be fully defined.

Clarity must be understood from the readers' point of view. Rough drafts must be reexamined to ensure that there is no confusion of thought. There is usually just one chance to sell the reader on the report's objectives. Present information in a logical, simple, and systematic manner.

G.3.4 Conciseness. Report quality is often inversely related to report length. Do not be disappointed if a report describing a major incident is only a few pages long. The readers will mainly be interested in the recommendations of the report and how they are supported.

Do not hide the important aspects of the report by including irrelevant details. However, do include enough information to enable the reader clearly to understand what is being described and why.

G.3.5 Continuity. Reports should tell a complete story in an interesting and logical manner. This requires that the train of thought must be consistent between succeeding sentences, paragraphs, and sections of the report. It is preferable that references to figures, tables, or supporting documents should be placed near the beginning or end of a discussion.

G.3.6 Objectivity. Technical reports should be honest and straightforward. Suspicions will be raised if attempts are made to hide meanings or cover mistakes. Be tactful and show restraint when presenting recommendations that may conflict with current policy and procedures. Try to reduce the use of opinionated and narrow-minded statements. Remember you are writing to *express*, not *impress*.

G.3.7 Writing Style. Technical reports require a formal writing style that places personal style secondary to the clear and objective transmission of information. This does not mean that a report cannot be interesting, just that a person's style must not obscure exact meaning or lead the reader away from the report's objectives.

State your purpose or objective clearly and describe concisely how you are going to do that. Continue with the presentation while ensuring you are consistent with the stated objectives. Finally, summarize your conclusions and recommendations.

Get to the point as soon as possible. Omit information that is not directly related to the conclusions. If you need to include information that may be of interest but is not directly pertinent to your conclusions, put it in an appendix.

G.3.8 Report Checklist. As an aid in revising and drafting your report, try to answer the following questions:

(1) Have you clearly stated the purpose and scope of the report?
(2) Have you accomplished your objectives that were set out in the introduction?
(3) Did you say what you wanted to say? Do you mean what you said? Can your readers misinterpret what you said?
(4) Will the important results be clear to your readers? Is the order of importance clear?
(5) Are the limitations of the conclusions clearly stated?
(6) Have you clearly separated facts from opinions? Have you made a career altering decision (CAD)?
(7) Are your recommendations realistic? Can they be carried out?

Annex H Monitoring Compliance with a Fire Service Occupational Safety, Health, and Wellness Program (NFPA 1500)

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

H.1 Management Plan Adoption. The purpose of Chapters 6 through 16 of this standard is to specify the minimum requirements for an occupational safety, health and wellness program for a fire department *(see 6.1.2.1)*. Furthermore, 6.1.2.4 states that nothing in the standard is intended to restrict any jurisdiction from exceeding the minimum requirements in the standard. Subsection 6.1.5 requires that when the standard is adopted by a jurisdiction, the authority having jurisdiction shall set a date or dates for achieving compliance with the requirements of Chapters 6 through 16. As part of that adoption, the fire department is required to adopt a risk management plan that includes a written plan for compliance with Chapters 6 through 16 of this standard.

H.2 Fire Service Occupational Safety, Health, and Wellness Program Worksheet. The worksheet *(see Figure H.2)* in this annex was developed to provide a template for fire departments that are beginning implementation of an occupational safety, health, and wellness program or that are evaluating the current status of their programs.

H.3 Risk Management Compliance. This worksheet provides a tool for assessing the yearly progress of the program and for developing a fiscal policy plan to achieve compliance with the applicable requirements of the standard. In the second column, the user can record the percentage of compliance with a specific requirement, whether just getting started, about 50 percent complete, or in full compliance. The remarks can indicate factors that are affecting achieving compliance, whether they are financial, administrative, or in need of legislative action. Where compliance will cost money, the third column can be used to record an estimate of the cost to comply. Again the remarks can indicate whether this is an operating budget or a capital planning budget–type expense. The fourth column allows for indicating an expected or anticipated compliance date. Any additional remarks or changes should be included in the last column for explanatory purposes. This is not a "one size fits all" worksheet and should be modified or expanded to meet the user's needs.

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET

Fire Department: _____ Date: _____

Person(s) Completing Worksheet

Name: _____ Title: _____

Name: _____ Title: _____

Name: _____ Title: _____

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 6 Fire Department Administration				
6.1 Administration				
6.1.4 Equivalency				
6.1.4.1 Equivalency levels of qualifications				
6.1.4.2 Training, education, competency, safety				
6.2 Fire Department Organizational Statement				
6.2.1 Written statement or policy				
6.2.2 Operational response criteria				
6.2.3 Statement available for inspection				
6.2.5 Pre-incident plan development				
6.3 Risk Management Plan				
6.3.1 Written risk management plan				
6.3.2 Risk management plan coverage				
6.3.3 Risk management plan components				
6.4 Safety and Health Policy				
6.4.1 Written fire department occupational safety and health policy				
6.4.2 Program complies with Chapters 6 through 16				
6.4.3 Evaluate effectiveness of plan				
6.5 Roles and Responsibilities				
6.5.1 Fire department responsibility				
6.5.2 Comply with laws				
6.5.3 Fire department rules, regulations, and SOPs				
6.5.4 Accident investigation procedure				
6.5.5 Accidents and illnesses investigated				
6.5.6 Individuals cooperate, participate, and comply				

NFPA 1550 (p. 1 of 18)

FIGURE H.2 Fire Service Occupational Safety, Health, and Wellness Program Worksheet.

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 6 Fire Department Administration *(continued)*				
6.5.7 Member has right to be protected and participate				
6.5.8 Member organization role				
6.6 Occupational Safety and Health Committee				
6.6.1 Establish committee				
6.6.2 Committee purpose				
6.6.3 Regular meetings				
6.6.4 Relevant NFPA standards training				
6.7 Records				
6.7.1 Accidents, injury, illness, exposures, death records				
6.7.2 Occupational exposures				
6.7.3 Confidential health records				
6.7.4 Training records				
6.7.5 Vehicles and equipment records				
6.8 Appointment of the Health and Safety Officer				
6.8.1 Manages occupation safety, health, and wellness program				
6.8.2 Appointed by fire chief				
6.8.3 Meets requirements				
6.8.4 Given authority to administer program				
6.8.5 Performs duties in Chapter 4				
6.8.6 Additional safety officers and resources available				
Chapter 7 Training, Education, and Professional Development				
7.1 General Requirements				
7.1.1 Establish and maintain safety and health training				
7.1.2 Training commensurate with duties and functions				
7.1.3 Training and education programs for new members				
7.1.4 Restrict the activities of new members				
7.1.5 Training on the risk management plan				
7.1.6 Training on department's written procedures				
7.1.7 Training for emergency medical services				

NFPA 1550 (p. 2 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 7 Training, Education, and Professional Development *(continued)*				
7.1.8 Training on operation, limitation, maintenance, and retirement criteria for PPE				
7.1.9 Maintaining proficiency in skills and knowledge				
7.1.10 Training includes safe exiting and accountability.				
7.1.13 Training includes incident management and accountability system used by the fire department.				
7.2 Member Qualifications				
7.2.1 Firefighters meet NFPA 1001, as incorporated in NFPA 1010, 2024 edition.				
7.2.2 Driver/operators meet NFPA 1002, as incorporated in NFPA 1010, 2024 edition.				
7.2.3 Airport firefighters meet NFPA 1003, as incorporated in NFPA 1010, 2024 edition.				
7.2.4 Fire officers meet NFPA 1021.				
7.2.5 Wildland firefighters meet NFPA 1051, as incorporated in NFPA 1030, 2024 edition.				
7.2.6 Hazardous materials responders trained to at least operations level per NFPA 472, as incorporated in NFPA 470, 2022 edition.				
7.2.7 Fire investigation training meeting NFPA 1033				
7.2.8 Fire inspection training meeting NFPA 1031, as incorporated in NFPA 1030, 2024 edition.				
7.3 Training Requirements				
7.3.1 Adopt or develop training and education curriculums				
7.3.2 Training supports minimum qualifications and certifications of members.				
7.3.3 Members practice assigned skill sets on a regular basis but not less than annually.				
7.3.4 Training for members when written policies, practices, procedures, or guidelines are changed				
7.3.5 SCBA training program per NFPA 1404				
7.3.6 Wildland firefighters trained at least annually in the proper deployment of fire shelter.				
7.3.7 Live fire training in accordance with NFPA 1403				
7.3.8 Supervised training				
7.3.9 Emergency medical services training				

NFPA 1550 (p. 3 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 7 Training, Education, and Professional Development *(continued)*				
7.3.10 Training on care, use, inspection, maintenance, and limitations of the protective clothing and equipment				
7.3.11 Incident management training to NFPA 1561				
7.3.12 Infectious disease control training to NFPA 1581				
7.4 Special Operations Training				
7.4.1 Advanced training for special operations				
7.4.2 Train members for support to special operations.				
7.4.3 Technician level for hazardous materials mitigation				
7.4.4 Rescue technician training to NFPA 1006 when required				
7.5 Member Proficiency				
7.5.1 Proficiency of members				
7.5.2 Monitor training progress				
7.5.3 Annual skills check				
7.6 Training Activities				
7.6.1 Training and exercises conducted by qualified instructor				
7.6.2 Live training and exercises to NFPA 1403				
7.6.3 Risk assessment to determine medical capabilities at training site				
Chapter 8 Fire Apparatus, Equipment, and Drivers/Operators				
8.1 Fire Department Apparatus				
8.1.1 Safety and health concerns related to fire apparatus				
8.1.2 New fire apparatus meets NFPA 1901, as incorporated in the 2024 edition of NFPA 1900.				
8.1.3 New wildland fire apparatus meets NFPA 1906, as incorporated in the 2024 edition of NFPA 1900.				
8.1.4 New automotive ambulances meet NFPA 1917, as incorporated in the 2024 edition of NFPA 1900.				
8.1.5 New marine firefighting vessels meet NFPA 1925, as incorporated in the 2024 edition of NFPA 1910.				
8.1.6 Tools, equipment, and SCBA properly secured.				
8.1.7 Apparatus refurbished per NFPA 1912, as incorporated in the 2024 edition of NFPA 1910.				
8.1.8 Restraints and harnesses for aircraft operations				
8.1.9 Apparatus has hose storage area with positive means to prevent unintentional hose deployment.				
8.2 Drivers/Operators of Fire Department Apparatus				
8.2.1 Successful completion of approved driver training				
8.2.2 Complies with traffic laws including having valid driver's licenses				

NFPA 1550 (p. 4 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 8 Fire Apparatus, Equipment, and Drivers/Operators *(continued)*				
8.2.3 Rules and regulations for operating fire department vehicles				
8.2.4 Drivers are responsible				
8.2.5 All persons secured				
8.2.6 Drivers obey all traffic laws				
8.2.7 SOPs for nonemergency and emergency response				
8.2.8 Emergency response, drivers bring vehicle to a complete stop				
8.2.9 Proceed only when safe				
8.2.10 Stop at unguarded railroad grade crossings				
8.2.11 Use caution at guarded railroad grade crossings				
8.2.12 SOPs — engine, transmission and driveline retarders				
8.2.13 SOPs — manual brake limiting valves				
8.2.14 Rules and regulations for private vehicles for emergency response				
8.3 Riding in Fire Apparatus				
8.3.1 Seated and belted securely while riding in fire apparatus				
8.3.2 Tail steps and standing prohibited				
8.3.3 Seat belts not released while the vehicle is in motion				
8.3.4 Secured to vehicle while performing emergency medical care				
8.3.5 Hose loading operations				
8.3.6 Tiller training				
8.3.7 Helmets for riding in unenclosed areas				
8.3.8 Eye protection for riding in unenclosed areas				
8.3.9 Alternative transportation				
8.4 Inspection, Maintenance, and Repair of Fire Apparatus				
8.4.1 Fire apparatus inspection, maintenance, and repair per NFPA 1911, as incorporated in the 2024 edition of 1910				
8.4.2 Pumpers service tested per NFPA 1911, as incorporated in the 2024 edition of 1910				
8.4.3 Aerial ladders and elevating platforms tested per NFPA 1911, as incorporated in the 2024 edition of 1910				
8.4.4 Apparatus and equipment disinfected per NFPA 1581				

NFPA 1550 (p. 5 of 18)

FIGURE H.2 ***Continued***

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 8 Fire Apparatus, Equipment, and Driver/Operators *(continued)*				
8.5 Tools and Equipment				
8.5.1 Safety and health are primary concerns				
8.5.2 Hearing conservation				
8.5.3 New fire department ground ladders meet NFPA 1931, as incorporated in the 2024 edition of NFPA 1960				
8.5.4 New fire hose meets NFPA 1961, as incorporated in the 2024 edition of NFPA 1960				
8.5.5 New spray nozzles meet NFPA 1964, as incorporated in the 2024 edition of NFPA 1960				
8.5.6 Equipment inspected at least weekly and within 24 hours after any use				
8.5.7 Records maintained for the equipment				
8.5.8 Tested at least annually				
8.5.9 Defective or unserviceable equipment removed from service				
8.5.10 Tools and equipment cleaned per NFPA 1581				
8.5.11 Fire department ground ladders tested per NFPA 1932				
8.5.12 Fire hose inspected and tested per NFPA 1962				
8.5.13 Portable fire extinguishers inspected and tested per NFPA 10				
8.5.14 Powered rescue tools meet NFPA 1936, as incorporated in the 2024 edition of NFPA 1960				
Chapter 9 Protective Clothing and Protective Equipment				
9.1 General				
9.1.1 Fire department provides PPE				
9.1.2 Use of PPE				
9.1.3 Use of PPE specific to operation				
9.1.4 PPE cleaned every 6 months per NFPA 1851				
9.1.5 Where worn, station work uniforms meet NFPA 1975				
9.2 Protective Clothing for Structural Firefighting				
9.2.1 Protective clothing meets NFPA 1971				
9.2.2 Minimum 2 in. (50 mm) overlap of all protective clothing layers				

NFPA 1550 (p. 6 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 9 Protective Clothing and Protective Equipment (continued)				
9.2.3 Overlap not required on single-piece protection coveralls				
9.2.4.2 Gloves have proper interface				
9.2.5.1 Program in place for selection, care, maintenance, and use of protective clothing				
9.2.6 Require all members to wear appropriate protective ensemble				
9.3 Protective Clothing for Proximity Firefighting Operations				
9.3.1 Risk assessment performed as required by Chapter 5 of NFPA 1851 to determine need for proximity ensembles				
9.3.2 Proximity firefighting protective equipment meeting NFPA 1971				
9.3.3 Overlap not required on single piece protection coveralls				
9.3.4 SCBA protected				
9.4 Protective Clothing for Emergency Medical Operations				
9.4.1.1 Emergency medical protective clothing meeting NFPA 1999 provided and used				
9.4.2 Members use emergency medical gloves				
9.4.3 Members use emergency medical body and face protection				
9.4.4 Infection control program for EMS protective clothing meets NFPA 1581				
9.6 Chemical-Protective Clothing for Hazardous Materials Emergency Operations				
9.6.1 Members have and use vapor-protective garments that meet NFPA 1991 when appropriate				
9.6.1 Members have and use liquid splash-protective garments that meet NFPA 1992 when appropriate				
9.6.1 Members have and use appropriate protective ensemble for CBRN terrorism incidents				
9.7 Inspection, Maintenance, and Disposal of Chemical-Protective Clothing				
9.7.1 Inspected and maintained per manufacturer's recommendation				
9.7.2 Dispose of contaminated garments				

NFPA 1550 (p. 7 of 18)

FIGURE H.2 ***Continued***

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 9 Protective Clothing and Protective Equipment *(continued)*				
9.8 Protective Clothing and Equipment for Wildland Firefighting				
9.8.1 SOPs for use of protective clothing				
9.8.2 Protective clothing that meets NFPA 1977 provided and used				
9.8.3 Fire shelter provided and worn properly				
9.9 Protective Ensemble for Technical Rescue Operations				
9.9.1 Selection, care, and maintenance as specified in NFPA 1855				
9.9.2 Technical rescue protective clothing meeting NFPA 1951 provided and used				
9.9.3 Minimum 2 in. (50 mm) overlap of all protective clothing layers				
9.9.4 Respiratory protection certified by NIOSH provided and used				
9.9.5 Primary eye protection that meets NFPA 1951 provided and used				
9.9.6 Protective clothing used and maintained per manufacturer's instructions				
9.10 Protective Clothing and Equipment for Surface Water Operations				
9.10.1 Members who engage in surface water operations use a protective ensemble meeting NFPA 1952				
9.10.2 Surface water protective ensembles used and maintained in accordance to manufacturer's instructions				
9.10.3 Fire department established maintenance and inspection program for surface water operation protective ensembles				
9.10.4 Proper decontamination procedures for surface water protective ensembles				
9.12 Respiratory Protection Program				
9.12.1 Respiratory protection program addresses the selection, care, maintenance, and use				
9.12.2 SOPs address respiratory protection				
9.12.3 Members qualified at least annually in use				
9.12.4 Reserve SCBA provided and maintained				
9.12.5 Adequate reserve air supply				
9.12.6 Equipment stored ready-for-use and properly protected				

NFPA 1550 (p. 8 of 18)

FIGURE H.2 ***Continued***

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 9 Protective Clothing and Protective Equipment *(continued)*				
9.12.7 SCBA provided that meets NFPA 1981 and required to be used				
9.12.8 Members understand keeping facepiece in place				
9.12.9 Respiratory protection in the post-fire environment				
9.13 Breathing Air				
9.13 Breathing air meets NFPA 1989				
9.14 Respiratory Protection Equipment				
9.14.1 SCBA meet appropriate standards				
9.14.2 Supplied-air respirators appropriate for intended application				
9.14.3 Air-purifying respirators NIOSH certified with policy for use				
9.15 Fit Testing				
9.15.1 Quantitative fit test annually				
9.15.2 New members fit tested before permitted in hazardous atmospheres				
9.15.3 Respirators quantitative fit testing in negative pressure mode				
9.15.4 Records of facepiece fitting test				
9.15.5 Protection factor at least 500 for negative-pressure facepieces				
9.16 Using Respiratory Protection				
9.16.1 Facepiece-to-face seal required				
9.16.2 Nothing passes through area of seal				
9.16.3 No beard and facial hair in area of seal				
9.16.4 Spectacles fitted to inside of facepiece				
9.16.5 Spectacle strap or temple bars prohibited				
9.16.6 Contact lenses permitted				
9.16.7 Head covering breaking seal prohibited				
9.16.8 SCBA facepiece/head harness worn under protective hood				
9.16.9 SCBA facepiece/head harness worn under hazardous chemical-protective helmet				
9.16.10 Helmet does not interfere with the facepiece-to-face seal				

NFPA 1550 (p. 9 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 9 Protective Clothing and Protective Equipment *(continued)*				
9.17 SCBA Cylinders				
9.17.1 Inspected annually				
9.17.2 Hydrostatic test cylinders				
9.17.3 SCBA cylinders minimum gas capacity				
9.17.4 In-service SCBA cylinders stored charged				
9.17.5 In-service SCBA cylinders inspected weekly, monthly, and prior to filling				
9.17.6 Personnel protected during SCBA cylinder filling				
9.17.7 Unique situations for rapid filling identified				
9.17.8 Risk assessment process used to identify rapid filling situations				
9.17.9 Rapid refilling of SCBA on person limited				
9.17.10 Emergency situation for air transfer permitted				
9.17.11 Transfilling per manufacturer's instructions				
9.17.12 Exit strategy practiced when SCBA cylinder reaches 600 L or more				
9.18 Personal Alert Safety Systems (PASS)				
9.18.1 PASS meet NFPA 1982				
9.18.2 Members provided with and use PASS device				
9.18.3 Tested at least weekly and prior to use				
9.19 Life Safety Rope and System Components				
9.19.1 Life safety rope and system components meet NFPA 1983				
9.19.2.1 Life safety rope used for other purposes removed from service				
9.19.3 Reuse of life safety rope only after evaluation				
9.19.4 Rope inspection by qualified person				
9.19.5 Records document each life safety rope use				
9.20 Face and Eye Protection				
9.20.1 Eye protection appropriate for hazard provided and used				
9.20.2 SCBA facepiece used as primary face and eye protection				
9.20.3 Primary eye protection used when full facepiece not used				

NFPA 1550 (p. 10 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 9 Protective Clothing and Protective Equipment *(continued)*				
9.21 Hearing Protection				
9.21.1 Provided and used when apparatus noise in excess of 90 dBA				
9.21.2 Provided and used when tool and equipment noise in excess of 90 dBA				
9.21.3 Hearing conservation program				
9.23 New and Existing Protective Clothing and Protective Equipment				
9.23.1 New PPE meets current standards				
9.23.2 Existing PPE met standards when manufactured				
9.23.3 PPE retired in accordance with NFPA 1851				
9.23.4 Open circuit SCBA retired in accordance with NFPA 1852				
9.23.5 Program for retirement and disposal of PPE				
9.23.6 Manufacturer criteria to be used				
Chapter 10 Emergency Operations				
10.1 Incident Management				
10.1.1 Prevent accidents and injuries				
10.1.2 Incident management system in writing and meets NFPA 1561				
10.1.3 IMS used at all emergency incidents				
10.1.4 IMS applied to drills, exercises, and training				
10.1.5 Incident commander responsible for safety				
10.1.6 Safety officer assigned when needed				
10.1.7 Span of control				
10.1.8 Incident commander's responsibility				
10.2 Communications				
10.2.1 Dispatch and incident communication systems meet Chapters 17 through 21 of this standard and NFPA 1221, as incorporated in the 2022 edition of NFPA 1225				
10.2.2 Portable radios in warm or hot zones				
10.2.3 SOPs for use of clear text radio messages				
10.2.4 Procedures for emergency traffic				
10.2.5 Incident clock used				
10.3 Crew Resource Management (CRM) During Emergency Operations				
10.3.1 CRM function of incident commander				
10.4 Risk Management During Emergency Operations				
10.4.1 Risk management integrated in incident command				

NFPA 1550 (p. 11 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 10 Emergency Operations *(continued)*				
10.4.2 Risk management principles used				
10.4.3 IC evaluates risk to members				
10.4.4 Risk management principles routinely employed by supervisors				
10.4.5 Safety officer with proper expertise appointed				
10.4.6 Protective equipment appropriate for CBRN exposure				
10.5 Personnel Accountability During Emergency Operations				
10.5.1 Written SOPs for personnel accountability				
10.5.2 Local conditions and characteristics considered				
10.5.3 Members actively participate				
10.5.4 IC maintains awareness				
10.5.5 Officers supervise assigned companies/crews				
10.5.6 Company officers responsible for members				
10.5.7 Members remain with company				
10.5.8 Member responsible for following personnel accountability system				
10.5.9 Personnel accountability system used at all incidents				
10.5.10 Accountability system effective				
10.5.11 Additional accountability officers				
10.5.12 IC and supervisors responsible for tracking and accountability of assigned companies				
10.6 Members Operating at Emergency Incidents				
10.6.1 Adequate number of personnel provided to safely conduct emergency operations				
10.6.2 No evolutions outside of established safety criteria				
10.6.3 Inexperienced members directly supervised				
10.6.4 Members operate in teams of two or more				
10.6.5 Crew members in communication with each other				

NFPA 1550 (p. 12 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 10 Emergency Operations *(continued)*				
10.6.6 Crew members operate in proximity to each other				
10.6.7 Two in, two out in initial stages				
10.6.8 At aircraft rescue and firefighting, IDLH area wingtip to wingtip				
10.6.9 Highest available level of EMS available for special operations				
10.6.10 EMS personnel at hazmat operations meet NFPA 473				
10.6.11 IC requests EMS to be available				
10.6.12 Members secured to aerial device				
10.6.13 PPE and SCBA used by fire investigators and others in IDLH atmosphere				
10.6.14 Water rescue members wear personal flotation devices				
10.6.15 SOP for hazardous energy source operations				
10.7 Emergency Incident Hazard Control Zones				
10.7.1 Hazard control zones established with members wearing appropriate level of PPE				
10.7.2 Hazard control zone perimeters established				
10.7.3 Changes in perimeters communicated to all members on scene				
10.7.4 Hazard control zones identified				
10.7.5 The IC ensures that the designation of the appropriate protective clothing and equipment is commensurate with the hazard zone the member is operating in				
10.7.6 All officers and members using appropriate PPE within that zone				
10.7.7 The use of hazard control zones continued until the hazards have been mitigated				

NFPA 1550 (p. 13 of 18)

FIGURE H.2 ***Continued***

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 10 Emergency Operations *(continued)*				
10.8 Rapid Intervention for Rescue of Members				
10.8.1 Personnel provided for rescue of members				
10.8.2.2 Standby members maintain awareness				
10.8.2.3 Standby members remain in communication				
10.8.2.4 Standby member permitted to perform other duties outside of the hazard area				
10.8.2.5 Standby member restricted activities				
10.8.2.6 Standby members have full PPE and SCBA				
10.8.2.7 Standby members don full PPE and SCBA before entering hazardous area				
10.8.2.8 Standby member limitations				
10.8.2.9 Rapid intervention crew deployed when incident no longer in initial stage				
10.8.2.10 In imminent life-threatening situation, action to prevent loss of life permitted with less than four personnel				
10.8.4 Rapid intervention crew equipped and available				
10.8.6 Composure and structure of RIC flexible				
10.8.7 IC provides RICs appropriate for incident size				
10.8.8 RIC status in early stages				
10.8.11 RICs for special operations				

NFPA 1550 (p. 14 of 18)

FIGURE H.2 ***Continued***

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 10 Emergency Operations *(continued)*				
10.10 Scenes of Violence, Civil Unrest, or Terrorism				
10.10.1 Fire department not involved in activity without law enforcement present				
10.10.2 Fire department personnel not involved in crowd control				
10.10.3 SOPs for member safety at civil disturbance				
10.10.4 Interagency agreement for protection of members				
10.10.5 Communication to indicate life-and-death situations				
10.10.6 Fire department to coordinate with law enforcement				
10.10.7 Fire department IC identifies and reacts to violent situations				
10.10.8 Fire department IC communicates with law enforcement IC				
10.10.9 Stage resources in a safe area until scene secure				
10.10.10 Secure law enforcement or withdraw when violence occurs				
10.10.11 Body armor used only by members trained and qualified				
10.10.12 Members supporting SWAT operations trained and operating under SOPs				
10.11 Post-Incident Analysis				
10.11.1 SOPs for standardized post-incident critique				
10.11.2 Safety officer involved in critique				
10.11.3 Review of conditions and actions on the safety and health of members				

NFPA 1550 (p. 15 of 18)

FIGURE H.2 ***Continued***

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 10 Emergency Operations *(continued)*				
10.11.4 Identify needed action to improve welfare of members				
10.11.5 Analysis includes standard action plan				
Chapter 12 Facility Safety				
12.1 Safety Standards				
12.1.1 Comply with codes				
12.1.2 Facilities for disinfecting, cleaning, and storage per NFPA 1581				
12.1.3 All facilities comply with NFPA *101*				
12.1.3.1 All facilities have smoke detectors				
12.1.3.4 All facilities have carbon monoxide detectors				
12.1.5 Methods to prevent exhaust exposure				
12.1.6 Contaminated PPE not in living and sleeping areas				
12.1.7 Smoke-free facilities				
12.1.8 Pole holes secured				
12.2 Inspections				
12.2.1 Annual code inspection				
12.2.2 Inspections documented				
12.2.3 Monthly safety and health inspection				
12.3 Maintenance and Repairs				
12.3 System to maintain facilities and correct safety or health hazards				
Chapter 13 Medical and Physical Requirements				
13.1 Medical Requirements				
13.1.1 Medical qualified before becoming a member				
13.1.2 Members meet Chapter 7 and Chapter 9 of NFPA 1582				
13.1.3 Medical evaluation considers risks and functions associated with duties				
13.1.4 Aircraft pilots comply with FAA regulations				
13.1.5 Members under influence of drugs or alcohol excluded from participation				

NFPA 1550 (p. 16 of 18)

FIGURE H.2 *Continued*

NFPA 1550
FIRE DEPARTMENT OCCUPATIONAL SAFETY, HEALTH, AND WELLNESS PROGRAM WORKSHEET
(continued)

Reference in Standard	Percent in Compliance	Estimated Cost to Comply	Expected Compliance Date	Remarks
Chapter 13 Medical and Physical Requirements *(continued)*				
13.2 Physical Performance Requirements				
13.2.1 Fire department develops requirements				
13.2.2 Candidates qualified prior to training				
13.2.3 Members annually qualified				
13.2.4 Members not qualified not involved in emergency operations				
13.2.5 Physical performance rehabilitation program available				
13.3 Health and Fitness				
13.3.1 Health and fitness program meets NFPA 1583				
13.3.2 Fitness levels determined by individual's assigned functions				
13.3.3 Health and fitness coordinator administers the program				
13.3.4 Health and fitness coordinator acts as liaison				
13.4 Confidential Health Data Base				
13.4.1 Individual health file for each member				
13.4.2 Health file complete				
13.4.3 Composite data base for analysis				
13.4.4 Autopsy results in health data base				
13.5 Infection Control				
13.5.1 Fire department limits or prevents member's exposure				
13.5.2 Infection control program meets NFPA 1581				
13.6 Fire Department Physician				
13.6.1 Fire department physician officially designated				
13.6.2 Provides medical guidance in management of safety and health program				
13.6.3 Physician licensed				
13.6.4 Available on urgent basis				
13.6.5 Health and safety officer and health fitness coordinator liaison with physician				
13.7 Fitness for Duty Evaluation				
13.7.1 Process for evaluating essential job functions				
13.7.2 Evaluation by qualified person and confirmed by fire department physician				
13.7.3 Treatment provided to allow member to perform essential job functions				
13.7.4 Fire department physician to confirm member can return to duty				

NFPA 1550 (p. 17 of 18)

FIGURE H.2 *Continued*