

NFPA[®]

1002

**Standard for Fire
Apparatus Driver/Operator
Professional Qualifications**

2017



IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® STANDARDS

NOTICE AND DISCLAIMER OF LIABILITY CONCERNING THE USE OF 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.

REMINDER: UPDATING OF NFPA STANDARDS

Users of NFPA codes, standards, recommended practices, and guides (“NFPA Standards”) should be aware that NFPA Standards may be amended from time to time through the issuance of Tentative Interim Amendments or corrected by Errata. An official NFPA Standard at any point in time consists of the current edition of the document together with any Tentative Interim Amendment and any Errata then in effect.

In order to determine whether an NFPA Standard has been amended through the issuance of Tentative Interim Amendments or corrected by Errata, visit the “Codes & Standards” section on NFPA’s website. There, the document information pages located at the “List of NFPA Codes & Standards” provide up-to-date, document-specific information including any issued Tentative Interim Amendments and Errata.

To view the document information page for a specific Standard, go to <http://www.nfpa.org/docinfo> to choose from the list of NFPA Standards or use the search feature to select the NFPA Standard number (e.g., NFPA 101). The document information page includes postings of all existing Tentative Interim Amendments and Errata. It also includes the option to register for an “Alert” feature to receive an automatic email notification when new updates and other information are posted regarding the document.

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® STANDARDS

ADDITIONAL NOTICES AND DISCLAIMERS

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 new editions or may be amended from time to time through the issuance of Tentative Interim Amendments or corrected by Errata. An official NFPA Standard at any point in time consists of the current edition of the document together with any Tentative Interim Amendments and any Errata then in effect. In order to determine whether a given document is the current edition and whether it has been amended through the issuance of Tentative Interim Amendments or corrected through the issuance of Errata, consult appropriate NFPA publications such as the National Fire Codes® Subscription Service, visit the NFPA website at www.nfpa.org, or contact the NFPA at the address listed below.

Interpretations of NFPA 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.

Copyright © 2016 National Fire Protection Association®. All Rights Reserved.

NFPA® 1002

Standard for

Fire Apparatus Driver/Operator Professional Qualifications

2017 Edition

This edition of NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, was prepared by the Technical Committee on Fire Fighter Professional Qualifications and released by the Correlating Committee on Professional Qualifications. It was issued by the Standards Council on November 11, 2016, with an effective date of December 1, 2016, and supersedes all previous editions.

This edition of NFPA 1002 was approved as an American National Standard on December 1, 2016.

Origin and Development of NFPA 1002

In 1972, the Joint Council of National Fire Service Organizations (JCNFSO) created the National Professional Qualifications Board (NPQB) for the fire service to facilitate the development of nationally applicable performance standards for uniformed fire service personnel. On December 14, 1972, the board established four technical committees to develop those standards, using the National Fire Protection Association (NFPA) standards-making system. The initial committees addressed the following career areas: fire fighter, fire officer, fire service instructor, and fire inspector and investigator. The Technical Committee on Fire Fighter Professional Qualifications met regularly after the adoption of NFPA 1001 to produce the first edition of this document, which was adopted by NFPA in 1976. NFPA 1002 was the second in the series of fire fighter professional qualifications standards.

Additional editions were adopted and issued by NFPA under the auspices of the NPQB in 1982 and 1988.

The original concept of the professional qualifications standards, as directed by the JCNFSO and the NPQB, was to develop an interrelated set of performance standards specifically for the uniformed fire service. The various levels of achievement in the standards were to build upon each other within a strictly defined career ladder. In the late 1980s, revisions of the standards recognized that the documents should stand on their own merit in terms of job performance requirements (JPRs) for a given field. Accordingly, the strict career ladder concept was revised, except for the progression from fire fighter to fire officer, in order to allow civilian entry into many of the fields. These revisions facilitated the use of the documents by other than the uniformed fire services.

In 1990, responsibility for the appointment of professional qualifications committees and the development of the professional qualifications standards were assumed by the NFPA. The Standards Council appointed the Correlating Committee on Professional Qualifications to assume responsibility for coordinating the requirements of all professional qualifications documents.

The JPR format of this document is consistent with the other standards in the professional qualifications project. Each JPR consists of the task to be performed; the tools, equipment, or materials that must be provided to successfully complete the task; evaluation parameters and/or performance outcomes; and lists of requisite knowledge and skills one must have to be able to perform the task. The intent of the Technical Committee on Fire Fighter Professional Qualifications is to provide clear and concise job performance requirements that can be used to determine that an individual, when measured to the standard, possesses the skills and knowledge to perform as a fire fighter.

In the 2003 edition of the document, the technical committee made changes to bring it into conformance with the new *Manual of Style for NFPA Technical Committee Documents* and included several small additions.

In the 2009 edition, the technical committee made the following changes to meet the Technical Correlating Committee request to standardize the documents within the professional qualifications project. The Purpose and Scope statements were rewritten, the term *certification* was replaced with *qualifying*, and a skills maintenance requirement was added to Chapter 1. The committee also accepted alternative general requirements for meeting Fire Fighter I with various specific requirements of NFPA 1081, *Standard for Industrial Fire Brigade Member Professional Qualifications*, for fire brigade members for Chapters 5, 6, and 10.

The 2014 edition had two significant changes. The technical committee recognized that not every authority having jurisdiction (AHJ) has the roadway feature capabilities to accomplish the various job requirement tasks to address the various apparatus maneuvers. It is the intent of the committee, when possible, to encourage that all skills be accomplished. The technical committee also recognized the importance of donning passenger restraint devices to ensure crew safety as part of driver/operator responsibilities.

In the 2017 edition, the requirement that a Driver/Operator be certified to the Firefighter I level was removed. This was replaced by duties that the technical committee feel are needed to perform the duties required for the role outside the IDLH area. Information has been added to the annex to provide an overview of the JPRs to assist the user of the document with the implementation of the requirements and the development of training programs using the JPRs.

Correlating Committee on Professional Qualifications

William E. Peterson, Chair

Kissimmee, FL [M]

Rep. International Fire Service Training Association

Andrew Blum, Exponent, Inc., GA [SE]

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

Gregg A. Cleveland, La Crosse Fire Department, WI [U]
Rep. NFPA Fire Service Section

Gordon Descutner, Alaska DPS Fire Standards Council, AK [U]
Rep. Alaska Fire Standards Council

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]

Douglas R. Goodings, Missouri State Fire Marshal, MO [E]

Scott M. Gorgon, North Las Vegas Fire Department, NV [L]
Rep. International Association of Fire Fighters

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

Tonya L. Hoover, CAL FIRE, Office of the State Fire Marshal, CA [U]

Rep. International Association of Fire Chiefs

James F. Jaracz, Fire Code Guy, IN [SE]

Richard A. Mason, National Fallen Firefighters Foundation, NH [SE]

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

Tracie M. Young-Brungard, Pennsylvania Office of the State Fire Commissioner, PA [E]

Rep. International Fire Service Accreditation Congress

Michael J. Yurgec, Spartan Motors, IL [M]

Dalan Lee Zartman, Rescue Methods, OH [U]

Alternates

Thomas W. Aurnhammer, Los Pinos Fire District, CO [U]
(Alt. to R. Kirk Hankins)

Wayne Bailey, North Carolina Fire & Rescue Commission, NC [E]
(Alt. to Tracie M. Young-Brungard)

David W. Lewis, National Volunteer Fire Council, MD [L]
(Alt. to Philip C. Stittleburg)

Richard T. Long, Jr., Exponent, Inc., MD [SE]
(Alt. to Andrew Blum)

Frederick W. Piechota, Jr., National Board on Fire Service Professional Qualifications, MA [E]
(Alt. to Brian R. Brauer)

Nonvoting

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

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, UT [M]
Rep. TC on Public Safety Telecommunicator Professional Qualifications

Dave E. Hanneman, Idaho Falls Fire Department, ID [U]
Rep. TC on Incident Management Professional Qualifications

Edward M. Hawthorne, Shell Oil Company, TX [U]
Rep. TC on Industrial Fire Brigades Professional Qualifications

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

Ed Conlin, NFPA Staff Liaison

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

Michael S. Mayers, Hilton Head Island Fire Rescue, SC [U]
Rep. TC on Rescue Technician Professional Qualifications

Gregory G. Noll, Hildebrand & Noll Associates Inc., PA [SE]
Rep. TC on Hazardous Materials Response Personnel

Randal E. Novak, Iowa Fire Service Training Bureau, IA [SE]
Rep. TC on Accreditation & Certification Professional Qualifications

Lawrence L. Preston, Maryland Fire and Rescue Institute, MD [E]
Rep. TC on Fire Officer Professional Qualifications

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

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

George A. Wendt, Travelers Insurance Company, NJ [I]
Rep. TC on Fire Investigator Professional Qualifications

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 Fighter Professional Qualifications

John S. Cunningham, Chair

Nova Scotia Firefighters School, Canada [U]

James C. Abner, Artesia Fire Department, NM [U]
Bob Allen, Oklahoma Emergency Management, OK [SE]
Michael M. Athey, Shepherdstown Fire Department, WV [L]
Adam C. Ballard, Aberdeen Proving Ground Fire & Emergency Services, MD [L]
Richard L. Best, National Fallen Firefighters Foundation, OH [L]
 Rep. National Fallen Fire Fighters Foundation
Michael Caviness, North Carolina Office of the State Fire Marshal, NC [E]
J. T. Collier, City of Scottsdale Fire Department, AZ [L]
Geoffrey L. Coon, North Pole Fire Department, AK [U]
 Rep. Alaska Fire Standards Council
Alec Feldman, Fulcrum Consultants, Ireland [SE]
 Rep. JOIFF-International Organisation for Industrial Hazard Management
Kenn Fontenot, LSU Fire & Emergency Training, LA [L]
 Rep. National Volunteer Fire Council
Douglas R. Goodings, Missouri State Fire Marshal, MO [E]
Craig L. Hannan, Fire Protection Publications, OK [M]
 Rep. International Fire Service Training Association
David R. Harris, U.S. Air Force, NJ [L]
C. Gordon Henderson, Georgia Firefighter Standards & Training Council, GA [E]
 Rep. Georgia State Firefighter's Association, Inc.

Forest Herndon, Jr., Maritime Emergency Response Educators LLC, NJ [SE]
Jim Jobusch, Town of Gilbert Fire Department, AZ [U]
Jeff Johnson, Resolve Marine Group, WA [U]
Todd R. Kollar, State of Alaska Department of Public Safety, AK [SE]
F. Patrick Marlatt, Maryland Fire and Rescue Institute, MD [SE]
Justin McMillian, Jackson County Fire Department, MS [L]
Jerome E. Ozog, Volunteer Firemen's Insurance Services, Inc., PA [I]
 Rep. Volunteer Firemen's Insurance Services, Inc.
John K. Rhoades, Jr., Kingman Fire Department, AZ [U]
Christina Spoons, Westmont Fire Department, IL [L]
Tina Takahashi, City of Westminster, CO [L]
 Rep. International Association of Women in Fire & Emergency Services
Donald H. J. Turno, Savannah River Nuclear Solutions, LLC, SC [U]
Jimmy VanCleve, Kentucky Fire Commission, KY [SE]
John T. Wade, Gulf States Engineering, Inc., MS [SE]
Dudley H. A. Wright II, Monroe Township Fire Department, OH [U]

Alternates

Scott E. Avery, Fire Service Testing Company, Inc., MO [RT]
 (Voting Alt.)
James Crisp, Nikiski Fire Department, AK [U]
 (Alt. to Geoffrey L. Coon)
Barbara Jackson, Savannah River Nuclear Solutions, LLC, SC [U]
 (Alt. to Donald H. J. Turno)
Ryan N. Pietzsch, Volunteer Firemen's Insurance Services, Inc., PA [I]
 (Alt. to Jerome E. Ozog)

Robert F. Shaw, State of Alaska Department of Public Safety, AK [SE]
 (Alt. to Todd R. Kollar)
Robert Singletary, City of Warner Robins Fire Department, GA [E]
 (Alt. to C. Gordon Henderson)
George Stevens, Lamar County, MS [L]
 (Alt. to Kenn Fontenot)
Michael A. Wieder, Fire Protection Publications, OK [M]
 (Alt. to Craig L. Hannan)

Ed Conlin, 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 professional qualifications required of fire fighters.

Contents

Chapter 1 Administration	1002- 7	Chapter 7 Apparatus Equipped with a Tiller	1002- 13
1.1 Scope.	1002- 7	7.1 General.	1002- 13
1.2 Purpose.	1002- 7	7.2 Operations.	1002- 13
1.3 Application.	1002- 7	Chapter 8 Wildland Fire Apparatus	1002- 14
1.4 Units.	1002- 8	8.1 General.	1002- 14
1.5 General.	1002- 8	8.2 Operations.	1002- 14
Chapter 2 Referenced Publications	1002- 8	Chapter 9 Aircraft Rescue and Fire-Fighting Apparatus	1002- 15
2.1 General.	1002- 8	9.1 General.	1002- 15
2.2 NFPA Publications.	1002- 8	9.2 Operations.	1002- 15
2.3 Other Publications.	1002- 8	Chapter 10 Mobile Water Supply Apparatus	1002- 16
2.4 References for Extracts in Mandatory Sections.	1002- 8	10.1 General.	1002- 16
Chapter 3 Definitions	1002- 8	10.2 Operations.	1002- 16
3.1 General.	1002- 8	Annex A Explanatory Material	1002- 16
3.2 NFPA Official Definitions.	1002- 8	Annex B Explanation of the Professional Qualifications Standards and Concepts of JPRs	1002- 20
3.3 General Definitions.	1002- 9	Annex C An Overview of JPRs for Emergency Response Personnel Who Drive and Operate Fire Apparatus	1002- 22
Chapter 4 General Requirements	1002- 10	Annex D National Fallen Firefighters Foundation (NFFF)	1002- 26
4.1 General.	1002- 10	Annex E Informational References	1002- 27
4.2 Preventive Maintenance.	1002- 10	Index	1002- 29
4.3 Driving/Operating.	1002- 10		
4.4 Fire Department Communications.	1002- 11		
Chapter 5 Apparatus Equipped with Fire Pump	1002- 11		
5.1 General.	1002- 11		
5.2 Operations.	1002- 11		
Chapter 6 Apparatus Equipped with an Aerial Device	1002- 12		
6.1 General.	1002- 12		
6.2 Operations.	1002- 13		

NFPA 1002

Standard for

**Fire Apparatus Driver/Operator Professional
Qualifications**

2017 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. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex E. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

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

Chapter 1 Administration

1.1 Scope. This standard identifies the minimum job performance requirements (JPRs) for emergency response personnel who drive and operate fire apparatus.

1.2* Purpose. The purpose of this standard is to specify the minimum JPRs for service as emergency response personnel who drive and operate fire apparatus are qualified.

1.2.1 This standard shall define emergency response personnel who drive and operate fire apparatus.

1.2.2 The intent of this standard shall be to ensure that individuals serving as emergency response personnel who drive and operate fire apparatus are qualified.

1.2.3* This standard shall not address organization or management responsibility.

1.2.4 It is not the intent of this standard to restrict any jurisdiction from exceeding or combining these minimum requirements.

1.2.5 JPRs for each level and position are the tasks personnel shall be able to perform to carry out the job duties.

1.2.6* Emergency response personnel who drive and operate fire apparatus shall remain current with the general knowledge, skills, and JPRs addressed for each level or position of qualification. Emergency response personnel who drive and operate fire apparatus shall remain current with practices and applicable standards and shall demonstrate competency on an annual basis.

1.2.7 Fire apparatus shall be driven and operated in accordance with the design criteria and manufacturer’s specifications.

1.3 Application. The application of this standard is to specify which requirements within the document shall apply to specific personnel who drive and operate fire apparatus.

1.3.1 The JPRs shall be accomplished in accordance with the requirements of the authority having jurisdiction (AHJ) and all applicable NFPA standards.

1.3.2 It shall not be required that the JPRs be mastered in the order in which they appear. The AHJ shall establish instructional priority and training program content to prepare personnel to meet the JPRs of this standard.

1.3.3 Performance of each requirement of this standard shall be evaluated by personnel approved by the AHJ.

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

1.3.5* Emergency response personnel who drive and operate fire apparatus shall meet the requirements of Chapter 4 for each type of apparatus. Personnel assigned the duties of Apparatus Equipped with a Fire Pump shall meet all the requirements defined in Chapter 5 prior to being qualified. Personnel assigned the duties of Apparatus Equipped with an Aerial Device shall meet all the requirements defined in Chapter 6 prior to being qualified. Personnel assigned the duties of Apparatus Equipped with a Tiller shall meet all the requirements defined in Chapter 7 prior to being qualified. Personnel assigned the duties of Wildland Fire Apparatus shall meet all the requirements defined in Chapter 8 prior to being qualified. Personnel assigned the duties of Aircraft Rescue and Fire-Fighting Apparatus shall meet all the requirements defined in Chapter 9 prior to being qualified. Personnel assigned the duties of Mobile Water Supply Apparatus shall meet all the requirements defined in Chapter 10 prior to being qualified.

1.3.6 The AHJ shall provide the necessary personal protective equipment (PPE) and clothing to conduct assignments.

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

Table 1.4 U.S-to-SI Conversions

Quantity	U.S. 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

1.3.8 Prior to training to meet the requirements of this standard, personnel shall meet the following requirements:

- (1) Educational requirements established by the AHJ
- (2) Age requirements established by the AHJ
- (3) Emergency response personnel who drive and operate fire apparatus shall be subject to periodic medical evaluation, as required by 10.1.1, 10.1.2, 10.1.3, and 10.1.5 of NFPA 1500
- (4) Job-related physical performance requirements established by the AHJ

1.3.9 Wherever in this standard the terms *rules, regulations, policies, procedures, supplies, apparatus, or equipment* are referred to, it is implied that they are those of the AHJ.

1.4 Units. In this standard, equivalent values in SI units shall not be considered as the requirement, as these values can be approximate. (See Table 1.4.)

1.5 General.

1.5.1 Emergency response personnel who drive and operate fire apparatus shall be licensed to drive all vehicles they are expected to drive and operate.

1.5.2 The job performance requirements of Chapters 4 through 10 shall be performed utilizing vehicles of similar weight, wheelbase, and function as those expected to be driven and operated in the performance of their duties.

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 13, *Standard for the Installation of Sprinkler Systems*, 2016 edition.

NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, 2016 edition.

NFPA 13E, *Recommended Practice for Fire Department Operations in Properties Protected by Sprinkler and Standpipe Systems*, 2015 edition.

NFPA 13R, *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*, 2016 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2016 edition.

NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 2013 edition.

NFPA 1003, *Standard for Airport Fire Fighter Professional Qualifications*, 2015 edition.

NFPA 1081, *Standard for Industrial Fire Brigade Member Professional Qualifications*, 2012 edition.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, 2013 edition.

NFPA 1901, *Standard for Automotive Fire Apparatus*, 2016 edition.

2.3 Other Publications.

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

2.4 References for Extracts in Mandatory Sections.

NFPA 1000, *Standard for Fire Service Professional Qualifications Accreditation and Certification Systems*, 2017 edition.

NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 2013 edition.

NFPA 1031, *Standard for Professional Qualifications for Fire Inspector and Plan Examiner*, 2014 edition.

NFPA 1901, *Standard for Automotive Fire Apparatus*, 2016 edition.

NFPA 1906, *Standard for Wildland Fire Apparatus*, 2016 edition.

NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus*, 2017 edition.

Chapter 3 Definitions

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

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

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

3.2.3 Shall. Indicates a mandatory requirement.

3.2.4 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 phrase "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 Aerial Apparatus. A piece of fire apparatus with a permanently mounted, power-operated elevating device, including aerial ladders, aerial ladder platforms, telescoping aerial platforms, articulating aerial platforms, and elevating water delivery systems.

3.3.2 Aerial Device. An aerial ladder, elevating platform, aerial ladder platform, or water tower that is designed to position personnel, handle materials, provide egress, and discharge water.

3.3.3 Aerial Operator. The fire apparatus driver who has met the requirements of Chapter 6 for the operation of apparatus equipped with aerial devices.

3.3.4 Aircraft Rescue and Fire-Fighting (ARFF) Vehicle. A vehicle intended to carry rescue and fire-fighting equipment for rescuing occupants and combating fires in aircraft at, or in the vicinity of, an airport.

3.3.5 Angle of Approach. The smallest angle made between the road surface and a line drawn from the front point of ground contact of the front tire to any projection of the apparatus in front of the front axle.

3.3.6 Angle of Departure. The smallest angle made between the road surface and the line drawn from the rear point of ground contact of the rear tire to any projection of the apparatus behind the rear axle.

3.3.7 Fire Apparatus. A vehicle designed to be used under emergency conditions to transport personnel and equipment, or to support the suppression of fires and mitigation of other hazardous situations. [1901, 2016]

3.3.8 Fire Apparatus Driver. The fire fighter who has met the requirements defined in Chapter 4.

3.3.9 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.

3.3.10 Fire Department Pumper. A piece of fire apparatus with a permanently mounted fire pump that has a rated discharge capacity of 750 gpm (2850 L/min) or greater as defined in NFPA 1901.

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

3.3.12 Fire Pump. A water pump with a rated capacity of at least 250 gpm (1000 L/min) but less than 3000 gpm (12,000 L/min) at 150 psi (1000 kPa) net pump pressure, or a water pump with rated capacity over 3000 gpm (12,000 L/min) or greater at 100 psi (700 kPa) net pump pressure, that is mounted on a fire apparatus and intended for fire fighting. [1901, 2016]

3.3.13 Foam System. A system provided on fire apparatus for the delivery of a proportioned foam and water mixture for use in fire extinguishment. The system includes a concentrate tank, a method for removing the concentrate from the tank, a foam-liquid proportioning system, and a method (e.g., hand lines or fixed turret nozzles) of delivering the proportioned foam to the fire.

3.3.14 Job Performance Requirement. A statement that describes a specific job task, lists the items necessary to complete the task, and defines measurable or observable outcomes and evaluation areas for the specific task. [1000, 2017]

3.3.15 Liquid Surge. The force imposed upon a fire apparatus by the contents of a partially filled water or foam concentrate tank when the vehicle is accelerated, decelerated, or turned.

3.3.16 Mobile Water Supply Apparatus (Tanker, Tender). A vehicle designed primarily for transporting (pickup, transporting, and delivering) water to fire emergency scenes to be applied by other vehicles or pumping equipment. [1901, 2016]

3.3.17 Off-Road Use. Use of fire department vehicles in areas where there is a need to traverse off of a public way.

3.3.18 Operational Check. To determine the operational readiness of a component on a fire apparatus by observing the actual operation of the component. [1911, 2017]

3.3.19 Pump Operator. The fire apparatus driver/operator who has met the requirements of Chapter 5 for the operation of apparatus equipped with an attack or fire pump.

3.3.20 Pumping System. A pump, the piping, and associated devices permanently mounted on a piece of fire apparatus for the purpose of delivering a fire stream.

3.3.21 Requisite Knowledge. Fundamental knowledge one must have in order to perform a specific task. [1031, 2014]

3.3.22 Requisite Skills. The essential skills one must have in order to perform a specific task. [1031, 2014]

3.3.23 Task. A specific job behavior or activity.

3.3.24 Tiller Aerial Apparatus. A tractor-trailer aerial apparatus with a steering wheel connected to the rear axle for maneuvering the rear portion of the apparatus.

3.3.25 Tiller Operator. The fire apparatus driver/operator who has met the requirements of Chapter 7.

3.3.26 Visual Check. Inspection by the eye without recourse to any optical devices, except prescription eyeglasses.

3.3.27* Wildland Suppression Fire Apparatus. A fire apparatus designed for fighting wildland fires that is equipped with a pump, a water tank, limited hose and equipment, and pump-and-roll capability. [1906, 2016]

Chapter 4 General Requirements

4.1 General. Prior to operating fire department vehicles, the fire apparatus driver/operator shall meet the job performance requirements defined in Sections 4.2 and 4.3.

4.2 Preventive Maintenance.

4.2.1* Perform visual and operational checks on the systems and components specified in the following list, given a fire department vehicle, its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified:

- (1) Battery(ies)
- (2) Braking system
- (3) Coolant system
- (4) Electrical system
- (5) Fuel
- (6) Hydraulic fluids
- (7) Oil
- (8) Tires
- (9) Steering system
- (10) Belts
- (11) Tools, appliances, and equipment
- (12) Built-in safety features

(A) Requisite Knowledge. Manufacturer specifications and requirements, policies, and procedures of the jurisdiction.

(B) Requisite Skills. The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.

4.2.2 Document the visual and operational checks, given maintenance and inspection forms, so that all items are checked for operation and deficiencies are reported.

(A) Requisite Knowledge. Departmental requirements for documenting maintenance performed and the importance of keeping accurate records.

(B) Requisite Skills. The ability to use tools and equipment and complete all related departmental forms.

4.3 Driving/Operating.

4.3.1* Operate a fire apparatus, given a vehicle and a predetermined route on a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable state and local laws and departmental rules and regulations.

(A) Requisite Knowledge. The importance of donning passenger restraint devices and ensuring crew safety; the common causes of fire apparatus accidents and the recognition that drivers of fire apparatus are responsible for the safe and prudent operation of the vehicle under all conditions; the effects on vehicle control of liquid surge, braking reaction time, and load factors; effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, and gear patterns; negotiating intersections, railroad crossings, and bridges; weight and height limitations for both roads and bridges; identification and operation of automotive gauges; and operational limits.

(B) Requisite Skills. The ability to operate passenger restraint devices; maintain safe following distances; maintain control of

the vehicle while accelerating, decelerating, and turning, given road, weather, and traffic conditions; operate under adverse environmental or driving surface conditions; and use automotive gauges and controls.

4.3.2* Back a vehicle from a roadway into restricted spaces on both the right and left sides of the vehicle, given a fire apparatus; a spotter where the spotter assists the driver in performing the maneuver; and restricted spaces 12 ft (3.7 m) in width, requiring 90-degree right-hand and left-hand turns from the roadway, so that the vehicle is parked within the restricted areas without having to stop and pull forward and without striking obstructions.

(A) Requisite Knowledge. Vehicle dimensions, turning characteristics, spotter signaling, and principles of safe vehicle operation.

(B) Requisite Skills. The ability to use mirrors and judge vehicle clearance.

4.3.3* Maneuver a vehicle around obstructions on a roadway while moving forward and in reverse, given a fire apparatus; a spotter where the spotter assists the driver in performing the maneuver; and a roadway with obstructions, so that the vehicle is maneuvered through the obstructions without stopping to change the direction of travel and without striking the obstructions.

(A) Requisite Knowledge. Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operation.

(B) Requisite Skills. The ability to use mirrors and judge vehicle clearance.

4.3.4* Turn a fire apparatus 180 degrees within a confined space, given a fire apparatus, a spotter for backing up, and an area in which the vehicle cannot perform a U-turn without stopping and backing up, so that the vehicle is turned 180 degrees without striking obstructions within the given space.

(A) Requisite Knowledge. Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operation.

(B) Requisite Skills. The ability to use mirrors and judge vehicle clearance.

4.3.5* Maneuver a fire apparatus in areas with restricted horizontal and vertical clearances, given a fire apparatus and a course that requires the operator to move through areas of restricted horizontal and vertical clearances, so that the operator judges the ability of the vehicle to pass through the openings and so that no obstructions are struck.

(A) Requisite Knowledge. Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operation.

(B) Requisite Skills. The ability to use mirrors and judge vehicle clearance.

4.3.6* Operate a vehicle using defensive driving techniques, given an assignment and a fire apparatus, so that control of the vehicle is maintained.

(A) Requisite Knowledge. The importance of donning passenger restraint devices and ensuring crew safety; the common causes of fire apparatus accidents and the recognition

that drivers of fire apparatus are responsible for the safe and prudent operation of the vehicle under all conditions; the effects on vehicle control of liquid surge, braking reaction time, and load factors; the effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, gear patterns; and automatic braking systems in wet and dry conditions; negotiation of intersections, railroad crossings, and bridges; weight and height limitations for both roads and bridges; identification and operation of automotive gauges; and operational limits.

(B) Requisite Skills. The ability to operate passenger restraint devices; maintain safe following distances; maintain control of the vehicle while accelerating, decelerating, and turning, given road, weather, and traffic conditions; operate under adverse environmental or driving surface conditions; and use automotive gauges and controls.

4.3.7* Operate all fixed systems and equipment on the vehicle not addressed elsewhere in this standard, given systems and equipment, manufacturer's specifications and instructions, and departmental policies and procedures for the systems and equipment, so that each system or piece of equipment is operated in accordance with the applicable instructions and policies.

(A) Requisite Knowledge. Manufacturer's specifications and operating procedures, and policies and procedures of the jurisdiction.

(B) Requisite Skills. The ability to deploy, energize, and monitor the system or equipment and to recognize and correct system problems.

4.4 Fire Department Communications. This duty shall involve initiating responses, receiving telephone calls, and using fire department communications equipment to correctly relay verbal or written information.

4.4.1 Initiate the response to a reported emergency, given the report of an emergency, fire department SOPs, and communications equipment, so that all necessary information is obtained, communications equipment is operated correctly, and the information is relayed promptly and accurately to the dispatch center. [1001:5.2.1]

(A) Requisite Knowledge. Procedures for reporting an emergency; departmental SOPs for taking and receiving alarms, radio codes, or procedures; and information needs of dispatch center. [1001:5.2.1(A)]

(B) Requisite Skills. The ability to operate fire department communications equipment, relay information, and record information. [1001:5.2.1(B)]

4.4.2 Receive a telephone call, given a fire department phone, so that procedures for answering the phone are used and the caller's information is relayed. [1001:5.2.2]

(A) Requisite Knowledge. Fire department procedures for answering nonemergency telephone calls. [1001:5.2.2(A)]

(B) Requisite Skills. The ability to operate fire station telephone and intercom equipment. [1001:5.2.2(B)]

4.4.3 Transmit and receive messages via the fire department radio, given a fire department radio and operating procedures,

so that the information is accurate, complete, clear, and relayed within the time established by the AHJ. [1001:5.2.3]

(A) Requisite Knowledge. Departmental radio procedures and etiquette for routine traffic, emergency traffic, and emergency evacuation signals. [1001:5.2.3(A)]

(B) Requisite Skills. The ability to operate radio equipment and discriminate between routine and emergency traffic. [1001:5.2.3(B)]

4.4.4 Activate emergency procedures, given an emergency situation and department SOPs, so that emergency actions can be initiated.

(A) Requisite Knowledge. Department SOPs and emergency communication procedures.

(B) Requisite Skills. The ability to activate emergency procedures in accordance with the department's SOPs.

Chapter 5 Apparatus Equipped with Fire Pump

5.1* General. The job performance requirements defined in Sections 5.1 and 5.2 shall be met prior to qualifying as a fire department driver/operator — pumper.

5.1.1 General Knowledge Requirements. The organization of the fire department; the role of the driver/operator in the organization; the mission of fire service; the fire department's standard operating procedures (SOPs) and rules and regulations as they apply to the driver/operator; the value of fire and life safety initiatives in support of the fire department mission and to reduce fire fighter line-of-duty injuries and fatalities; the role of other agencies as they relate to the fire department; aspects of the fire department's member assistance program; the importance of physical fitness and a healthy lifestyle to the performance of the duties of a fire fighter; the critical aspects of NFPA 1500. [1001:5.1.1]

5.1.2 Perform the visual and operational checks on the systems and components specified in the following list in addition to those in 4.2.1, given a fire department pumper, its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status of the pumper is verified:

- (1) Water tank and other extinguishing agent levels (if applicable)
- (2) Pumping systems
- (3) Foam systems

(A) Requisite Knowledge. Manufacturer's specifications and requirements, and policies and procedures of the jurisdiction.

(B) Requisite Skills. The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.

5.2 Operations.

5.2.1 Respond on apparatus to an emergency scene, given safety equipment as provided by the AHJ, so that the apparatus is correctly mounted and dismounted and seat belts are used while the vehicle is in motion.

(A) Requisite Knowledge. Mounting and dismounting procedures for riding fire apparatus, hazards and ways to avoid hazards associated with riding apparatus, prohibited practices,

and types of department safety equipment and the means for usage. [1001:5.3.2(A)]

(B) Requisite Skills. The ability to use each piece of provided safety equipment. [1001:5.3.2(B)]

5.2.2 Establish and operate in work areas at emergency and nonemergency scenes, given safety equipment, traffic and scene control devices, emergency and nonemergency scenes, traffic and other hazards, an assignment, and SOPs, so that procedures are followed, safety equipment is utilized, protected work areas are established as directed using traffic and scene control devices, and the driver/operator performs assigned tasks only in established, protected work areas.

(A) Requisite Knowledge. Potential hazards involved in operating on emergency and nonemergency scenes including vehicle traffic, utilities, and environmental conditions; proper procedures for dismounting apparatus in traffic; procedures for safe operation at emergency and nonemergency scenes; and the safety equipment available for members on emergency and nonemergency scenes.

(B) Requisite Skills. The ability to use safety equipment, deploy traffic and scene control devices, dismount apparatus, establish and operate in the protected work areas as directed.

5.2.3 Connect a fire department pumper to a water supply as a member of a team, given supply or intake hose, hose tools, and a fire hydrant or static water source, so that connections are tight and water flow is unobstructed. [1001:5.3.15]

(A) Requisite Knowledge. Loading and off-loading procedures for mobile water supply apparatus; fire hydrant operation; and suitable static water supply sources, procedures, and protocol for connecting to various water sources. [1001:5.3.15(A)]

(B) Requisite Skills. The ability to hand lay a supply hose, connect and place hard suction hose for drafting operations, deploy portable water tanks as well as the equipment necessary to transfer water between and draft from them, make hydrant-to-pumper hose connections for forward and reverse lays, connect supply hose to a hydrant, and fully open and close the hydrant. [1001:5.3.15(B)]

5.2.4 Produce effective hand or master streams, given the sources specified in the following list, so that the pump is engaged, all pressure control and vehicle safety devices are set, the rated flow of the nozzle is achieved and maintained, and the apparatus is monitored for potential problems:

- (1) Internal tank
- (2)* Pressurized source
- (3) Static source
- (4) Transfer from internal tank to external source

(A) Requisite Knowledge. Hydraulic calculations for friction loss and flow using both written formulas and estimation methods, safe operation of the pump, problems related to small-diameter or dead-end mains, low-pressure and private water supply systems, hydrant coding systems, and reliability of static sources.

(B) Requisite Skills. The ability to position a fire department pumper to operate at a fire hydrant and at a static water source, power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cool-

ing systems, make the transition between internal and external water sources, and assemble hose lines, nozzles, valves, and appliances.

5.2.5 Pump a supply line of 2½ in. (65 mm) or larger, given a relay pumping evolution the length and size of the line and the desired flow and intake pressure, so that the correct pressure and flow are provided to the next pumper in the relay.

(A) Requisite Knowledge. Hydraulic calculations for friction loss and flow using both written formulas and estimation methods, safe operation of the pump, problems related to small-diameter or dead-end mains, low-pressure and private water supply systems, hydrant coding systems, and reliability of static sources.

(B) Requisite Skills. The ability to position a fire department pumper to operate at a fire hydrant and at a static water source, power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cooling systems, make the transition between internal and external water sources, and assemble hose lines, nozzles, valves, and appliances.

5.2.6 Produce a foam fire stream, given foam-producing equipment, so that proportioned foam is provided.

(A) Requisite Knowledge. Proportioning rates and concentrations, equipment assembly procedures, foam system limitations, and manufacturer's specifications.

(B) Requisite Skills. The ability to operate foam proportioning equipment and connect foam stream equipment.

5.2.7 Supply water to fire sprinkler and standpipe systems, given specific system information and a fire department pumper, so that water is supplied to the system at the correct volume and pressure.

(A) Requisite Knowledge. Calculation of pump discharge pressure; hose layouts; location of fire department connection; alternative supply procedures if fire department connection is not usable; operating principles of sprinkler systems as defined in NFPA 13, NFPA 13D, and NFPA 13R; fire department operations in sprinklered properties as defined in NFPA 13E; and operating principles of standpipe systems as defined in NFPA 14.

(B) Requisite Skills. The ability to position a fire department pumper to operate at a fire hydrant and at a static water source, power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cooling systems, make the transition between internal and external water sources, and assemble hose lines, nozzles, valves, and appliances.

Chapter 6 Apparatus Equipped with an Aerial Device

6.1* General. The requirements of Fire Fighter I as specified in NFPA 1001 (or the requirements of Advanced Exterior Industrial Fire Brigade Member or Interior Structural Fire Brigade Member as specified in NFPA 1081) and the job performance requirements defined in Sections 6.1 and 6.2 shall be met prior to qualifying as a fire department driver/operator — aerial.

6.1.1 Perform the visual and operation checks on the systems and components specified in the following list in addition to those specified in 4.2.1, given a fire department aerial apparatus, and policies and procedures of the jurisdiction, so that the operational readiness of the aerial apparatus is verified:

- (1) Cable systems (if applicable)
- (2) Aerial device hydraulic systems
- (3) Slides and rollers
- (4) Stabilizing systems
- (5) Aerial device safety systems
- (6) Breathing air systems
- (7) Communication systems

(A) Requisite Knowledge. Manufacturer's specifications and requirements, and policies and procedures of the jurisdiction.

(B) Requisite Skills. The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.

6.2 Operations.

6.2.1 Maneuver and position an aerial apparatus, given an aerial apparatus, an incident location, a situation description, and an assignment, so that the apparatus is positioned for correct aerial device deployment.

(A) Requisite Knowledge. Capabilities and limitations of aerial devices related to reach, tip load, angle of inclination, and angle from chassis axis; effects of topography, ground, and weather conditions on deployment; and use of the aerial device.

(B) Requisite Skills. The ability to determine a correct position for the apparatus, maneuver apparatus into that position, and avoid obstacles to operations.

6.2.2 Stabilize an aerial apparatus, given a positioned vehicle and the manufacturer's recommendations, so that power can be transferred to the aerial device hydraulic system and the device can be deployed.

(A) Requisite Knowledge. Aerial apparatus hydraulic systems, manufacturer's specifications for stabilization, stabilization requirements, and effects of topography and ground conditions on stabilization.

(B) Requisite Skills. The ability to transfer power from the vehicle's engine to the hydraulic system and operate vehicle stabilization devices.

6.2.3 Maneuver and position the aerial device from each control station, given an incident location, a situation description, and an assignment, so that the aerial device is positioned to accomplish the assignment.

(A) Requisite Knowledge. Aerial device hydraulic systems, hydraulic pressure relief systems, gauges and controls, cable systems, communications systems, electrical systems, emergency operating systems, locking systems, manual rotation and lowering systems, stabilizing systems, aerial device safety systems, system overrides and the hazards of using overrides, safe operational limitations of the given aerial device, safety procedures specific to the device, and operations near electrical hazards and overhead obstructions.

(B) Requisite Skills. The ability to raise, rotate, extend, and position to a specified location, as well as lock, unlock, retract, lower, and bed the aerial device.

6.2.4 Lower an aerial device using the emergency operating system, given an aerial device, so that the aerial device is lowered to its bedded position.

(A) Requisite Knowledge. Aerial device hydraulic systems, hydraulic pressure relief systems, gauges and controls, cable systems, communications systems, electrical systems, emergency operating systems, locking systems, manual rotation and lowering systems, stabilizing systems, aerial device safety systems, system overrides and the hazards of using overrides, safe operational limitations of the given aerial device, safety procedures specific to the device, and operations near electrical hazards and overhead obstructions.

(B) Requisite Skills. The ability to rotate and position to center, unlock, retract, lower, and bed the aerial device using the emergency operating system.

6.2.5 Deploy and operate an elevated master stream, given an aerial device, a master stream device, and a desired flow, so that the stream is effective.

(A) Requisite Knowledge. Nozzle reaction, range of operation, and weight limitations.

(B) Requisite Skills. The ability to connect a water supply to a master stream device and control an elevated nozzle.

Chapter 7 Apparatus Equipped with a Tiller

7.1* General. The requirements of Fire Fighter I as specified in NFPA 1001 and the job performance requirements defined in Chapter 6 and Section 7.2 shall be met prior to qualifying as a fire department driver/operator — tiller.

7.2 Operations.

7.2.1* Perform the practical driving exercises specified in 4.3.2 through 4.3.5 from the tiller position, given a qualified driver, a fire department aerial apparatus equipped with a tiller, and a spotter for backing up, so that each exercise is performed without striking the vehicle or obstructions.

(A) Requisite Knowledge. Capabilities and limitations of tiller aerial devices related to reach, tip load, angle of inclination, and angle from chassis axis; effects of topography, ground, and weather conditions on safe deployment; and use of a tiller aerial device.

(B) Requisite Skills. The ability to determine a correct position for the tiller, maneuver the tiller into that position, and avoid obstacles to operations.

7.2.2 Operate a fire department aerial apparatus equipped with a tiller from the tiller position over a predetermined route on a public way, using the maneuvers specified in 4.3.1, given a qualified driver, a fire department aerial apparatus equipped with a tiller, and a spotter for backing up, so that the vehicle is operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of NFPA 1500, Section 4.2.

(A) Requisite Knowledge. Principles of tiller operation, methods of communication with the driver, the effects on vehicle control of general steering reactions, night driving, negotiating intersections, and manufacturer operation limitations.

(B) Requisite Skills. The ability to operate the communication system between the tiller operator's position and the driver's compartment; operate passenger restraint devices; maintain control of the tiller while accelerating, decelerating, and turning; operate the vehicle during nonemergency conditions; and operate under adverse environmental or driving surface conditions.

7.2.3 Position a fire department aerial apparatus equipped with a tiller from the tiller position, given the apparatus operating instructions, an incident location, a situation description, and an assignment, so that the aerial device is positioned and stabilized to accomplish the assignment.

(A) Requisite Knowledge. Principles of positioning and stabilizing the aerial apparatus from the tiller position.

(B) Requisite Skills. The ability to determine a correct position for the tiller, maneuver the tiller into that position, and avoid obstacles to operations.

Chapter 8 Wildland Fire Apparatus

8.1 General. The job performance requirements defined in Sections 8.1 and 8.2 shall be met prior to qualifying as a driver/operator — wildland fire apparatus.

8.1.1 Perform the visual and operational checks on the systems and components specified in the following list, in addition to those in 4.2.1, given a wildland fire apparatus, its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status is verified:

- (1) Water tank and/or other extinguishing agent levels (if applicable)
- (2) Pumping systems
- (3) Foam systems

(A) Requisite Knowledge. Manufacturer's specifications and requirements, and policies and procedures of the jurisdiction.

(B) Requisite Skills. The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.

8.1.2* Operate a wildland fire apparatus, given a predetermined route off of a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable departmental rules and regulations and the design limitations of the vehicle.

(A) Requisite Knowledge. The effects on vehicle control of braking reaction time and load factors; effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, and gear patterns; negotiating intersections, railroad crossings, and bridges; weight and height limitations for both roads and bridges; identification and operation of automotive gauges; and operational limits.

(B) Requisite Skills. The ability to operate passenger restraint devices; maintain safe following distances; maintain control of the vehicle while accelerating, decelerating, and turning, given road, weather, and traffic conditions; operate during nonemergency conditions; operate under adverse environmental or

driving surface conditions; and use automotive gauges and controls.

8.2 Operations.

8.2.1 Produce effective fire streams, given the sources specified in the following list, so that the pump is engaged, all pressure-control and vehicle safety devices are set, the rated flow of the nozzle is achieved, and the apparatus is monitored for potential problems:

- (1) Water tank
- (2)* Pressurized source
- (3) Static source

(A) Requisite Knowledge. Hydraulic calculations for friction loss and flow using both written formulas and estimation methods, safe operation of the pump, correct apparatus placement, personal safety considerations, problems related to small-diameter or dead-end mains and low-pressure and private water supply systems, hydrant coding systems, and reliability of static sources.

(B) Requisite Skills. The ability to position a wildland fire apparatus to operate at a fire hydrant and at a static water source, place apparatus for fire attack, transfer power from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cooling systems, make the transition between internal and external water sources, and assemble hose lines, nozzles, valves, and appliances.

8.2.2 Pump a supply line, given a relay pumping evolution the length and size of the line and pumping flow and desired intake pressure, so that correct intake pressures and flow are provided to the next pumper in the relay.

(A) Requisite Knowledge. Hydraulic calculations for friction loss and flow using both written formulas and estimation methods, safe operation of the pump, problems related to small-diameter or dead-end main and low-pressure and private water supply systems, hydrant coding systems, and reliability of static sources.

(B) Requisite Skills. The ability to position a wildland apparatus to operate at a fire hydrant and at a static water source, transfer power from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cooling systems, make the transition between internal and external water sources, and assemble hose lines, nozzles, valves, and appliances.

8.2.3 Produce a foam fire stream, given foam-producing equipment, so that the correct proportion of foam is provided.

(A) Requisite Knowledge. Proportioning rates and concentrations, equipment assembly procedures, foam systems limitations, and manufacturer's specifications.

(B) Requisite Skills. The ability to operate foam proportioning equipment and connect foam stream equipment.

Chapter 9 Aircraft Rescue and Fire-Fighting Apparatus

9.1* General. The requirements of Fire Fighter II as specified in NFPA 1001, the requirements of Airport Fire Fighter as specified in NFPA 1003, and the job performance requirements defined in Sections 9.1 and 9.2 shall be met prior to qualifying as a fire department driver/operator — aircraft rescue and fire-fighting (ARFF) apparatus.

9.1.1 Perform the visual and operational checks on the systems and components specified in the following list, in addition to those in 4.2.1, given an ARFF vehicle and the manufacturer's servicing, testing, and inspection criteria; and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified:

- (1)* Agent dispensing systems
- (2)* Secondary extinguishing systems
- (3) Vehicle-mounted breathing air systems

(A) Requisite Knowledge. Manufacturer's specifications and requirements, and policies and procedures of the jurisdiction.

(B) Requisite Skills. The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.

9.1.2 Operate an ARFF vehicle, given a predetermined route on an airport that includes the maneuvers listed in 4.3.1, and operation in all aircraft movement areas, so that the vehicle is operated in compliance with all applicable federal, state/provincial, and local laws and departmental rules and regulations.

(A) Requisite Knowledge. The effects on vehicle control of liquid surge, braking reaction time, and load factors; effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, and gear patterns; negotiating intersections, railroad crossings, and bridges; weight and height limitations for both roads and bridges; identification and operation of automotive gauges; operational limits; hazards of driving through smoke; control tower light signals; airfield markings; runway and taxiway designations; air and vehicle traffic patterns; and all aircraft movements areas.

(B) Requisite Skills. The ability to operate passenger restraint devices; maintain safe following distances; maintain control of the vehicle while accelerating, decelerating, and turning, given road, weather, and traffic conditions; operate under adverse environmental or driving surface conditions; and use automotive gauges and controls.

9.1.3* Operate an ARFF apparatus, given a predetermined route, off of an improved surface that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable departmental rules and regulations and the design limitations of the vehicle.

(A) Requisite Knowledge. The effects on vehicle control of braking reaction time and load factors; effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, and gear patterns; negotiating intersections, railroad crossings, and bridges; weight and height limitations for both roads and

bridges; identification and operation of automotive gauges; and operational limits.

(B) Requisite Skills. The ability to operate passenger restraint devices; maintain safe following distances; maintain control of the vehicle while accelerating, decelerating, and turning, given road, weather, and traffic conditions; operate during nonemergency conditions; operate under adverse environmental or driving surface conditions; and use automotive gauges and controls.

9.2 Operations.

9.2.1 Maneuver and position an ARFF vehicle, given an incident location and description that involves the largest aircraft that uses the airport, so that the vehicle is positioned for correct operation at each operational position for the aircraft.

(A) Requisite Knowledge. Vehicle positioning for fire-fighting and rescue operations; tower light signals, aircraft recognition, airport markings, and capabilities and limitations of turret devices; and effects of topography, ground, and weather conditions on agent application, distribution rates, and density.

(B) Requisite Skills. The ability to determine a correct position for the apparatus, maneuver apparatus into that position, and avoid obstacles to operations.

9.2.2 Produce a fire stream while the vehicle is in both forward and reverse power modulation, given a discharge rate and intended target, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is moved and monitored for potential problems.

(A) Requisite Knowledge. Principles of agent management and application, effects of terrain and wind on agent application, turret capabilities and limitations, aircraft danger areas, theoretical critical fire area and practical critical fire area, aircraft entry and egress points, and correct apparatus placement.

(B) Requisite Skills. The ability to provide power to the pump, determine a correct position for the apparatus, maneuver apparatus into that position, avoid obstacles to operations, apply agent, and determine the length of time an extinguishing agent will be available.

9.2.3 Produce a fire stream, given a rate of discharge and water supplied from the sources specified in the following list, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is monitored for potential problems:

- (1) The internal tank
- (2)* Pressurized source
- (3) Static source in fire apparatus equipped with drafting capabilities

(A) Requisite Knowledge. Principles of agent management and application, effects of terrain and wind on agent application, turret capabilities and limitations, tower light signals, airport markings, aircraft recognition, aircraft danger areas, theoretical critical fire area and practical critical fire area, aircraft entry and egress points, and correct apparatus placement.

(B) Requisite Skills. The ability to provide power to the pump, determine a correct position for the apparatus, maneuver apparatus into that position, avoid obstacles to operations, apply agent, and determine the length of time an extinguishing agent will be available.

Chapter 10 Mobile Water Supply Apparatus

10.1 General. The job performance requirements defined in Sections 10.1 and 10.2 shall be met prior to qualifying as a fire department driver/operator — mobile water supply apparatus.

10.1.1 Perform visual and operational checks on the systems and components specified in the following list, in addition to those specified in 4.2.1, given a fire department mobile water supply apparatus, and policies and procedures of the jurisdiction, so that the operational readiness of the mobile water supply apparatus is verified:

- (1) Water tank and other extinguishing agent levels (if applicable)
- (2) Pumping system (if applicable)
- (3) Rapid dump system (if applicable)
- (4) Foam system (if applicable)

(A) Requisite Knowledge. Manufacturer's specifications and requirements, and policies and procedures of the jurisdiction.

(B) Requisite Skills. The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.

10.2 Operations.

10.2.1* Maneuver and position a mobile water supply apparatus at a water shuttle fill site, given a fill site location and one or more supply hose, so that the apparatus is positioned, supply hose are attached to the intake connections without having to stretch additional hose, and no objects are struck at the fill site.

(A) Requisite Knowledge. Local procedures for establishing a water shuttle fill site, method for marking the stopping position of the apparatus, and location of the water tank intakes on the apparatus.

(B) Requisite Skills. The ability to determine a correct position for the apparatus, maneuver apparatus into that position, and avoid obstacles to operations.

10.2.2* Maneuver and position a mobile water supply apparatus at a water shuttle dump site, given a dump site and a portable water tank, so that all of the water being discharged from the apparatus enters the portable tank and no objects are struck at the dump site.

(A) Requisite Knowledge. Local procedures for operating a water shuttle dump site and location of the water tank discharges on the apparatus.

(B) Requisite Skills. The ability to determine a correct position for the apparatus, maneuver apparatus into that position, avoid obstacles to operations, and operate the fire pump or rapid water dump system.

10.2.3* Establish a water shuttle dump site, given two or more portable water tanks, low-level strainers, water transfer equipment, fire hose, and a fire apparatus equipped with a fire pump, so that the tank being drafted from is kept full at all

times, the tank being dumped into is emptied first, and the water is transferred from one tank to the next.

(A) Requisite Knowledge. Local procedures for establishing a water shuttle dump site and principles of water transfer between multiple portable water tanks.

(B) Requisite Skills. The ability to deploy portable water tanks, connect and operate water transfer equipment, and connect a strainer and suction hose to the fire pump.

Annex A Explanatory Material

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

A.1.2 The purpose of this standard is not to mandate that emergency response personnel who drive and operate fire apparatus meet the requirements of all chapters of this standard. Personnel should meet only those provisions that pertain to the types of apparatus they will be expected to drive and operate.

A.1.2.3 Organization and management responsibilities should be addressed by the agency that personnel represent. The authority having jurisdiction (AHJ) should define the agency requirements for progression to positions of management responsibility.

A.1.2.6 The committee recognizes the importance of formal and continuing education and training programs to ensure emergency response personnel who drive and operate fire apparatus 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, provincial, tribal, 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 this standard.

A.1.3.5 It is the committee's intent that this standard be applied to all fire department vehicles. Drivers of vehicles not specifically addressed in Chapters 5 through 10 (e.g., staff or command vehicles, rescue or utility vehicles, and buses) are expected to meet the requirements of Chapter 4. Agencies operating unique or special vehicles (e.g., tractors, bulldozers, cranes, and graders) should develop job performance requirements and training programs for those vehicles.

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

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

A.3.3.27 Wildland Fire Apparatus. These vehicles are expected to operate on a wide variety of surfaces, including off-road. They are equipped with fixed or portable pumps used to supply attack lines; however, these pumps are of a capacity that does not put the vehicle into the classification of attack or fire pump.

A.4.2.1 Routine tests, inspections, and servicing functions should be performed on a daily, weekly, monthly, or other periodic basis as determined by departmental policy. The specifications provided by the manufacturer for these functions should be followed.

A.4.3.1 The committee's intent is to have the following maneuvers and features accomplished by the driver/operator. The committee recognizes that each of these situations might not exist within the authority having jurisdiction. The committee considers the following driving situations essential to driver/operator skills:

- (1) Four left turns and four right turns
- (2) A straight section of urban business street or a two-lane rural road at least 1 mi (1.6 km) in length
- (3) One through-intersection and two intersections where a stop has to be made
- (4) One railroad crossing
- (5) One curve, either left or right
- (6) A section of limited-access highway that includes a conventional ramp entrance and exit and a section of road long enough to allow two lane changes
- (7) A downgrade steep enough and long enough to require down-shifting and braking
- (8) An upgrade steep enough and long enough to require gear changing to maintain speed
- (9) One underpass or a low clearance or bridge

A.4.3.2 The alley dock exercise can be used as practice for meeting or in the evaluation of this requirement. This exercise measures a driver's ability to drive past a simulated dock or stall, back the apparatus into the space provided, and make a controlled stop. A dock or stall can be simulated by arranging barricades 40 ft (12.2 m) from a boundary line. These barricades should be 12 ft (3.7 m) apart, and the depth should be the length of the vehicle. The driver should pass the barricades with the dock on the left and then back the apparatus, using a left turn, into the stall. The exercise should then be repeated with the dock on the right side, using a right turn. [See Figure A.4.3.2(a).]

The apparatus station parking maneuver can also be used as practice for meeting or in the evaluation of this requirement. This exercise measures the driver's ability to back the apparatus into a fire station to park or to back the apparatus down a street to reverse the direction of travel. An engine bay can be simulated by allowing for a 20 ft (6.1 m) minimum setback from a street 30 ft (9 m) wide, with a set of barricades at the end of the setback, spaced 12 ft (3.7 m) apart to simulate the garage door. The setback from the street should be determined by the testing agency to ensure that the distances reflect those encountered by the apparatus driver during the normal course of duties. A marker placed on the ground should indicate to the operator the proper position of the left front tire of the vehicle once stopped and parked. A straight line can be provided to assist the operator while backing the apparatus, facilitating the use of vehicle mirrors. The minimum depth distance is determined by the total length of the vehicle. [See Figure A.4.3.2(b).]

Note that for large vehicles, such as ARFF apparatus, this course might need to be modified.

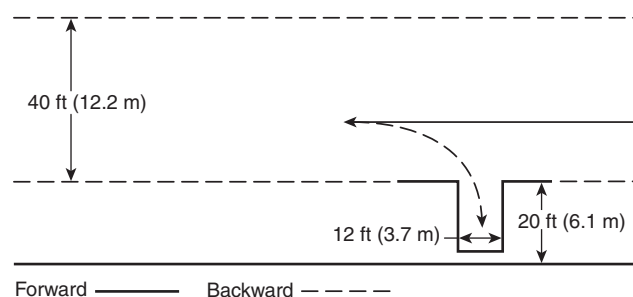


FIGURE A.4.3.2(a) Alley Dock Exercise.

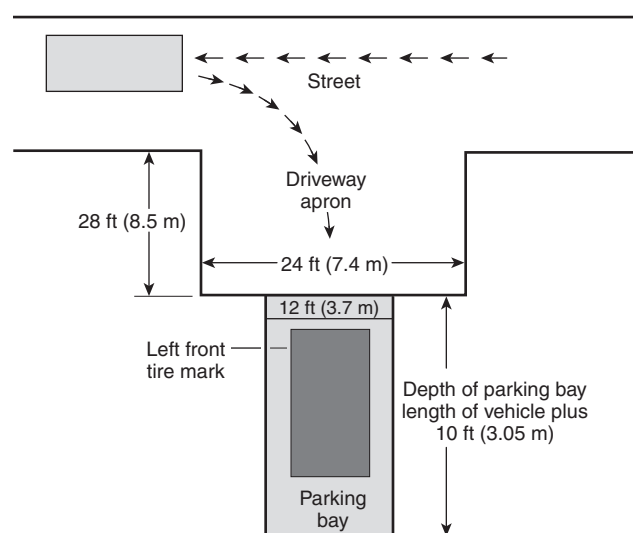


FIGURE A.4.3.2(b) Station Parking Procedure Drill.

A.4.3.3 The serpentine exercise can be used as practice for meeting or in the evaluation of this requirement. This exercise measures a driver's ability to steer the apparatus in close limits without stopping. The exercise should be conducted with the apparatus moving first backward, then forward. The course or path of travel for this exercise can be established by placing a minimum of three markers, each spaced between 30 ft (9 m) and 38 ft (12 m) apart, in a line. The spacing of the markers should be based on the wheel base of the vehicle used. Adequate space must be provided on each side of the markers for the apparatus to move without impediment. The driver should drive the apparatus along the left side of the markers in a straight line and stop just beyond the last marker. The driver then should begin the exercise by backing the apparatus between the markers by passing to the left of marker No. 1, to the right of marker No. 2, and to the left of marker No. 3. At this point, the driver should stop the vehicle and then drive it forward between the markers by passing to the right of marker No. 3, to the left of marker No. 2, and to the right of marker No. 1. (See Figure A.4.3.3.)

Note that for large vehicles, such as ARFF apparatus, this course might need to be modified.

A.4.3.4 The confined space turnaround can be used as practice for meeting or in the evaluation of this requirement. This exercise measures the driver's ability to turn the vehicle around in a confined space without striking obstacles. The turn is accomplished within an area 50 ft × 100 ft (15.24 m × 30.5 m). The driver moves into the area from a 12 ft (3.7 m) opening in the center of one of the 50 ft (15.24 m) legs, turns the vehicle 180 degrees, and returns through the opening. There is no limitation on the number of times the driver has to maneuver the vehicle to accomplish this exercise, but no portion of the vehicle should extend over the boundary lines of the space. (See Figure A.4.3.4.)

Note that for large vehicles, such as ARFF apparatus, this course might need to be modified.

A.4.3.5 The diminishing clearance exercise can be used as practice for meeting or in the evaluation of this requirement. This exercise measures a driver's ability to steer the apparatus in a straight line, to judge distances from wheel to object, and to stop at a finish line. The speed at which a driver should operate the apparatus is optional, but it should be great enough to necessitate quick judgment. This exercise is to be performed both forward and in reverse with a spotter. The course for this exercise is created by arranging two rows of markers to form a lane 75 ft (22.9 m) long. The lane varies in width from 9 ft 6 in. (2.9 m) to a diminishing clearance of 8 ft 2 in. (2.5 m). The driver should maneuver the apparatus through this lane without touching the markers. The vehicle should be stopped at a finish line 50 ft (15.24 m) beyond the last marker. No portion of the vehicle should protrude beyond

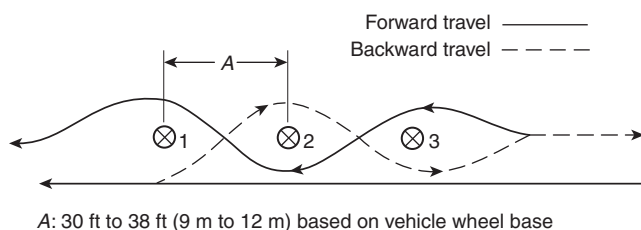


FIGURE A.4.3.3 Serpentine Exercise.

this line. Vertical clearance judgment should be evaluated using a prop with a crossbar that is adjustable, based on the vehicle height. During the evaluation, the driver should drive forward and back through the prop with the crossbar at several differing heights, including one that is lower than the top of the vehicle. The prop should not be struck. The intent of the vertical clearance judgment is for proper identification of the furthestmost point in the form of the apparatus. In situations where the apparatus is gaining entry to roadways or limited-height areas, the driver/operator must allow appropriate space ahead of the apparatus in order to avoid striking objects or to avoid extending apparatus into traffic lanes. (See Figure A.4.3.5.)

Note that for large vehicles, such as ARFF apparatus, this course might need to be modified.

A.4.3.6 Simulated emergency driving conditions should be restricted to a controlled area. Public ways should not be used for these activities.

A.4.3.7 The committee's intent for this job performance requirement is for the driver/operator to be able to operate all major equipment and mechanical systems that are attached to

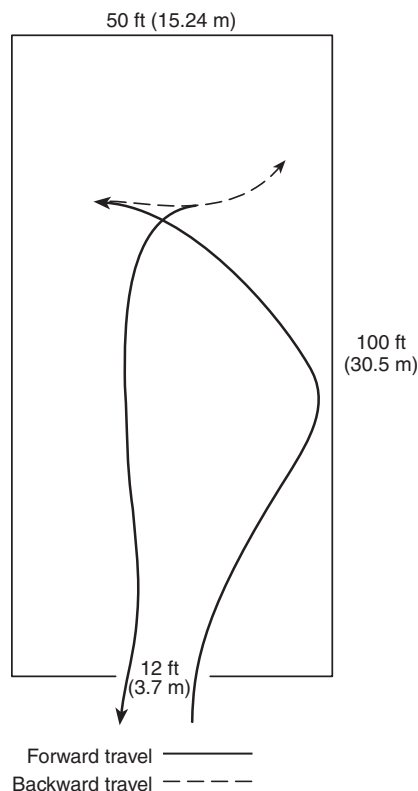


FIGURE A.4.3.4 Confined Space Turnaround.

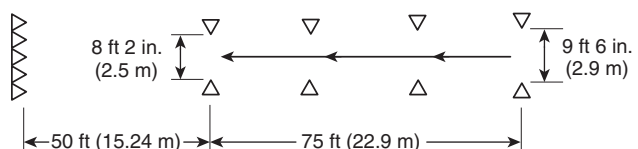


FIGURE A.4.3.5 Diminishing Clearance Exercise.

the apparatus, other than those covered in Chapters 5 through 10 of this standard. These types of equipment and systems include, but are not limited to, electric generation equipment, floodlighting systems, air compressors, air cascade systems, hydraulic rescue tool systems, power reels for air or hydraulic hose, cranes and stabilizers, and A-frames or other lifting equipment.

A.5.1 The requirements of Chapter 5 specify that the candidate shall meet the requirements of Fire Fighter I as specified in NFPA 1001 before qualification as a fire apparatus driver/operator. This means that the individual applying for qualification as a fire apparatus driver/operator has met all of the objectives in Chapters 1, 4, and 5 of NFPA 1001. These objectives include further requirements in areas such as fire hose, nozzles, and appliances; fire streams; water supplies; and sprinklers.

These requirements are in addition to the requirements of this standard. Any fire fighter who has already been qualified as a Fire Fighter I should review the requirements of the referenced chapters of NFPA 1001, as the candidate can be tested on the requirements included therein.

A.5.2.4(2) Pressurized sources include the following:

- (1) Connection to a hydrant
- (2) Supply line from another pumping source

A.6.1 The requirements of Chapter 6 specify that the candidate shall meet the requirements of Fire Fighter I as specified in NFPA 1001 before qualification as a fire apparatus driver/operator. This means that the individual applying for qualification as a fire apparatus driver/operator has met all of the objectives in Chapters 1, 4, and 5 of NFPA 1001. These objectives include further requirements in areas such as fire hose, nozzles, and appliances; fire streams; water supplies; and sprinklers. These requirements are in addition to the requirements of this standard. Any fire fighter who has already been qualified as a Fire Fighter I should review the requirements of the referenced chapters of NFPA 1001, as the candidate can be tested on the requirements included therein.

A.7.1 The requirements of Chapter 7 specify that the candidate shall meet the requirements of Fire Fighter I as specified in NFPA 1001 before qualification as a fire apparatus driver/operator. This means that the individual applying for qualification as a fire apparatus driver/operator has met all of the objectives in Chapters 1, 4, and 5 of NFPA 1001. These objectives include further requirements in areas such as fire hose, nozzles, and appliances; fire streams; water supplies; and sprinklers. These requirements are in addition to the requirements of this standard. Any fire fighter who has already been qualified as a Fire Fighter I should review the requirements of the referenced chapters of NFPA 1001, as the candidate can be tested on the requirements included therein.

Some fire departments operate fire apparatus that are equipped with a tiller (i.e., tillered rescue apparatus), but not an aerial device. The applicable portions of this chapter should be used as the basis for training personnel to drive those types of apparatus.

A.7.2.1 See A.4.3.3 through A.4.3.5.

A.8.1.2 The committee's intent is to have the following maneuvers and features accomplished by the driver/operator. The committee recognizes that each of these situations might

not exist within the authority having jurisdiction. The committee considers the following driving situations essential to driver/operator skills:

- (1) Loose or wet soil
- (2) Steep grades (30 percent fore and aft)
- (3) Limited sight distance
- (4) Blind curve
- (5) Vehicle clearance obstacles (height, width, undercarriage, angle of approach, angle of departure)
- (6) Limited space for turnaround
- (7) Side slopes (20 percent side to side)

A.8.2.1(2) Pressurized sources include the following:

- (1) Connection to a hydrant
- (2) Supply line from another pumping source

A.9.1 The requirements of Chapter 9 specify that the candidate shall meet the requirements of Fire Fighter II as specified in NFPA 1001 before qualification as a fire apparatus driver/operator. This means that the individual applying for qualification as a fire apparatus driver/operator has met all of the objectives in Chapters 1, 4, and 5 of NFPA 1001. These objectives include further requirements in areas such as fire hose, nozzles, and appliances; fire streams; water supplies; and sprinklers. These requirements are in addition to the requirements of this standard. Any fire fighter who has already been qualified as a Fire Fighter II should review the requirements of the referenced chapters of NFPA 1001, as the candidate can be tested on the requirements included therein.

A.9.1.1(1) An agent dispensing system is the primary fire suppression agent carried on ARFF vehicles.

A.9.1.1(2) A secondary extinguishing system is a separate system, independent of the primary system. It includes Halon 1211 (its future replacement), dry chemical, and other such systems used for specific types of aircraft-associated fires.

A.9.1.3 The committee's intent is to have the following maneuvers and features accomplished by the driver/operator. The committee recognizes that each of these situations might not exist within the authority having jurisdiction. The committee considers the following driving situations essential to driver/operator skills:

- (1) Loose or wet soil
- (2) Steep grades (30 percent fore and aft)
- (3) Limited sight distance
- (4) Vehicle clearance obstacles (height, width, undercarriage)
- (5) Limited space for turnaround
- (6) Side slopes (20 percent side to side)

A.9.2.3(2) Pressurized sources include the following:

- (1) Connection to a hydrant
- (2) Supply line from another pumping source

A.10.2.1 The intent of this requirement is for the driver/operator to be able to position the vehicle at a water shuttle fill site that has been established prior to the vehicle's arrival. A fire department pumper will connect to a water supply source and lay hose out that can be attached to the mobile water supply apparatus once it arrives at the fill site. If the jurisdiction operates its fill site operations in a different manner, this requirement might need to be adjusted.

A.10.2.2 The intent of this requirement is for the driver/operator to be able to position the vehicle at a water shuttle dump site that has been established prior to the vehicle’s arrival. The dump site will consist of one or more portable tanks that have been deployed on the ground. A fire department pumper drafts water from the portable tanks for use on the incident. The mobile water supply apparatus’ function is to dump their load into the portable tank and return to the fill site for another load. Depending on the design of the mobile water supply apparatus, one of three methods can be used to discharge water into the portable water tank. These methods include pumping the water off, using a gravity dump, or using a jet-assisted gravity dump. Depending on the design of the apparatus, water can be discharged from the front, rear, or either side of the vehicle.

A.10.2.3 A proper dump site involves the use of two or more portable tanks that are connected by a series of water transfer equipment. The water transfer equipment can be supplied by hoselines from the pumper that is supplying the fire scene or a second pumper placed at the drafting tank for the sole purpose of transferring water between the tanks. The goal is to keep the tank from which water is being drafted full at all times and the tank from which water is being dumped empty. This will ensure that mobile water supply apparatus that arrive at the dump site can unload their water and return for more in the shortest time possible.

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 fire fighter’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
- (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 Must Be Provided for Successful Completion of the Task. This component ensures that all 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 will 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, the 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.

B.2.3 Examples. With the components and requisites combined, a JPR might read similar to the following two examples.

B.2.3.1 Example: Fire Fighter I. Perform overhaul at a fire scene, given approved 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.

Table B.2.1 Example of a JPR

(1) Task to be performed	(1) Perform overhaul at a fire scene,
(2) Tools, equipment, or materials	(2) given approved 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

(A) Requisite Knowledge Knowledge of 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. Knowledge of budgetary process; governmental accounting procedures; federal, tribal, state, and local laws; organizational bidding process; and organization purchase requests.

(B) Requisite Skills. The ability to 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 the JPRs.

The evaluator would verify the attainment of requisite knowledge and skills prior to JPRs evaluation. Verification could be through documentation review or testing.

The individual seeking certification would be evaluated on completion of the JPRs. The individual would 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 the task (process-oriented) or on the task outcome (product-oriented).

Performance evaluation requires that individuals be given the tools, equipment, or materials listed in the JPR in order to complete the task.

It is important to remember that when a candidate is being evaluated, he or she must be given the tools, equipment, or materials listed in the JPRs (e.g., a portable tank, a low-level strainer, fire hose, and a fire apparatus equipped with a water pump) before he or she can be properly evaluated.

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 degree to be measured within the educational environment.

While the differences between JPRs and instructional objectives are subtle in appearance, the purpose of each statement differs greatly. 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 must 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 the use of statements designed for purposes other than teaching. Instructors would 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.

Note that it is assumed that the reader is familiar with curriculum development or training design and evaluation.

B.3.2.1 Example: Converting a Fire Fighter 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 approved 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 Fire Fighter 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 Fire Fighter 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. The instructional objectives are just two of several instructional objectives that would 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 job level, for example, Fire Fighter 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 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.

Brannick, M. T., and E. L. Levine, *Job Analysis: Methods, Research, and Applications for Human Resource Management in the New Millennium*. Thousand Oaks, CA: Sage Publications, 2002.

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*. San Francisco: Jossey-Bass/Pfeiffer, 2007.

Hartley, D. E., *Job Analysis at the Speed of Reality*. Amherst, MA: HRD Press, 1999.

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.

NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 2013 edition.

NFPA 1035, *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications*, 2015 edition.

Phillips, J. J., *In Action: Performance Analysis and Consulting*. Alexandria, VA: American Society for Training & Development, 2000.

Phillips, J. J., and E. F. Holton III, *In Action: Conducting Needs Assessment*. Alexandria, VA: American Society for Training & Development, 1995.

Robinson, D. G., and J. C. Robinson (Eds.), *Moving from Training to Performance: A Practical Guidebook*. Alexandria, VA: American Society for Training & Development; San Francisco: Berett-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, 1993.

Annex C An Overview of JPRs for Emergency Response Personnel Who Drive and Operate Fire Apparatus

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

C.1 Emergency Response Personnel Who Drive and Operate Fire Apparatus. The matrices shown in Table C.1 are included to provide the user of the standard with an overview of the JPRs and the progression of the various levels found in the document. They are intended to assist the user of the document with the implementation of the requirements and the development of training programs using the JPRs.

Table C.1 Overview of JPRs for Emergency Response Personnel Who Drive and Operate Fire Apparatus

General Requirements	
Preventive Maintenance	Driving/Operating
4.2.1 Perform the visual and operational checks on the systems and components specified in the following list, given a fire department vehicle, its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified: (1) Battery(ies) (2) Braking system (3) Coolant system (4) Electrical system (5) Fuel (6) Hydraulic fluids (7) Oil (8) Tires (9) Steering system (10) Belts (11) Tools, appliances, and equipment (12) Built-in safety features	4.3.1 Operate a fire apparatus, given a vehicle and a predetermined route on a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable state and local laws and departmental rules and regulations.
4.2.2 Document visual and operational checks on the systems, given maintenance and inspection forms, so that all items are checked for operation and deficiencies are reported.	4.3.2 Back a vehicle from a roadway into restricted spaces on both the right and left sides of the vehicle, given a fire apparatus; a spotter where the spotter assists the driver in performing the maneuver; and restricted spaces 12 ft (3.7 m) in width, requiring 90-degree right-hand and left-hand turns from the roadway; so that the vehicle is parked within the restricted areas without having to stop and pull forward and without striking obstructions.
	4.3.3 Maneuver a vehicle around obstructions on a roadway while moving forward and in reverse, given a fire apparatus; a spotter where the spotter assists the driver in performing the maneuver; and a roadway with obstructions, so that the vehicle is maneuvered through the obstructions without stopping to change the direction of travel and without striking the obstructions.
	4.3.4 Turn a fire apparatus 180 degrees within a confined space, given a fire apparatus; a spotter where the spotter assists the driver in performing the maneuver; and an area in which the vehicle cannot perform a U-turn without stopping and backing up, so that the vehicle is turned 180 degrees without striking obstructions within the given space.
	4.3.5 Maneuver a fire apparatus in areas with restricted horizontal and vertical clearances, given a fire apparatus and a course that requires the operator to move through areas of restricted horizontal and vertical clearances, so that the operator judges the ability of the vehicle to pass through the openings and so that no obstructions are struck.
	4.3.6 Operate a vehicle using defensive driving techniques, given an assignment and a fire apparatus, so that control of the vehicle is maintained.
	4.3.7 Operate all fixed systems and equipment on the vehicle not addressed elsewhere in this standard, given systems and equipment, manufacturer's specifications and instructions, and departmental policies and procedures for the systems and equipment, so that each system or piece of equipment is operated in accordance with the applicable instructions and policies.
	Communications
	4.4.1 Initiate the response to a reported emergency, given the report of an emergency, fire department SOPs, and communications equipment, so that all necessary information is obtained, communications equipment is operated correctly, and the information is relayed promptly and accurately to the dispatch center. [1001:5.2.1]
	4.4.2 Receive a telephone call, given a fire department phone, so that procedures for answering the phone are used and the caller's information is relayed. [1001:5.2.2]

(continues)

Table C.1 *Continued*

	4.4.3 Transmit and receive messages via the fire department radio, given a fire department radio and operating procedures, so that the information is accurate, complete, clear, and relayed within the time established by the AHJ. [1001:5.2.3] 4.4.4 Activate emergency procedures, given an emergency situation and department SOPs, so that emergency actions can be initiated
Apparatus Equipped with a Fire Pump	
General	Operations
5.1.2 Perform the visual and operational checks on the systems and components specified in the following list in addition to those in 4.2.1, given a fire department pumper, its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status of the pumper is verified: (1) Water tank and other extinguishing agent levels (if applicable) (2) Pumping systems (3) Foam systems	5.2.1 Respond on apparatus to an emergency scene, given safety equipment as provided by the AHJ, so that the apparatus is correctly mounted and dismounted and seat belts are used while the vehicle is in motion.
	5.2.2 Establish and operate in work areas at emergency and nonemergency scenes, given safety equipment, traffic and scene control devices, emergency and nonemergency scenes, traffic and other hazards, an assignment, and SOPs, so that procedures are followed, safety equipment is utilized, protected work areas are established as directed using traffic and scene control devices, and the driver/operator performs assigned tasks only in established, protected work areas.
	5.2.3 Connect a fire department pumper to a water supply as a member of a team, given supply or intake hose, hose tools, and a fire hydrant or static water source, so that connections are tight and water flow is unobstructed. [1001:5.3.15]
	5.2.4 Produce effective hand or master streams, given the sources specified in the following list, so that the pump is engaged, all pressure control and vehicle safety devices are set, the rated flow of the nozzle is achieved and maintained, and the apparatus is monitored for potential problems: (1) Internal tank (2) *Pressurized source (3) Static source (4) Transfer from internal tank to external source
	5.2.5 Pump a supply line of 2½ in. (65 mm) or larger, given a relay pumping evolution the length and size of the line and the desired flow and intake pressure, so that the correct pressure and flow are provided to the next pumper in the relay.
	5.2.6 Produce a foam fire stream, given foam-producing equipment, so that proportioned foam is provided.
	5.2.7 Supply water to fire sprinkler and standpipe systems, given specific system information and a fire department pumper, so that water is supplied to the system at the correct volume and pressure.
Apparatus Equipped with an Aerial Device	
General	Operations
6.1.1 Perform the visual and operational checks on the systems and components specified in the following list in addition to those specified in 4.2.1, given a fire department aerial apparatus, and policies and procedures of the jurisdiction, so that the operational readiness of the aerial apparatus is verified: (1) Cable systems (if applicable) (2) Aerial device hydraulic systems (3) Slides and rollers (4) Stabilizing systems (5) Aerial device safety systems (6) Breathing air systems (7) Communication systems	6.2.1 Maneuver and position an aerial apparatus, given an aerial apparatus, an incident location, a situation description, and an assignment, so that the apparatus is positioned for correct aerial device deployment.
	6.2.2 Stabilize an aerial apparatus, given a positioned vehicle and the manufacturer's recommendations, so that power can be transferred to the aerial device hydraulic system and the device can be deployed.

(continues)

Table C.1 *Continued*

	6.2.3 Maneuver and position the aerial device from each control station, given an incident location, a situation description, and an assignment, so that the aerial device is positioned to accomplish the assignment.
	6.2.4 Lower an aerial device using the emergency operating system, given an aerial device, so that the aerial device is lowered to its bedded position.
	6.2.5 Deploy and operate an elevated master stream, given an aerial device, a master stream device, and a desired flow so that the stream is effective.
Apparatus Equipped with a Tiller	
General	Operations
	7.2.1 Perform the practical driving exercises specified in 4.3.2 through 4.3.5 from the tiller position, given a qualified driver, a fire department aerial apparatus equipped with a tiller, and a spotter where the spotter assists the driver in performing the maneuver, so that each exercise is performed without striking the vehicle or obstructions.
	7.2.2 Operate a fire department aerial apparatus equipped with a tiller from the tiller position over a predetermined route on a public way, using the maneuvers specified in 4.3.1, given a qualified driver, a fire department aerial apparatus equipped with a tiller, and a spotter where the spotter assists the driver in performing the maneuver, so that the vehicle is operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of NFPA 1500, Section 4.2.
	7.2.3 Position a fire department aerial apparatus equipped with a tiller from the tiller position, given the apparatus operating instructions, an incident location, a situation description, and an assignment, so that the aerial device is positioned and stabilized to accomplish the assignment.
Wildland Fire Apparatus	
General	Operations
8.1.1 Perform the visual and operational checks on the systems and components specified in the following list, in addition to those in 4.2.1, given a wildland fire apparatus, its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status is verified: (1) Water tank and/or other extinguishing agent levels (if applicable) (2) Pumping systems (3) Foam systems	8.2.1 Produce effective fire streams, given the sources specified in the following list, so that the pump is engaged, all pressure-control and vehicle safety devices are set, the rated flow of the nozzle is achieved, and the apparatus is monitored for potential problems: (1) Water tank (2) Pressurized source (3) Static source
8.1.2 Operate a wildland fire apparatus, given a predetermined route off of a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable departmental rules and regulations and the design limitations of the vehicle.	8.2.2 Pump a supply line, given a relay pumping evolution the length and size of the line and pumping flow and desired intake pressure, so that correct intake pressures and flow are provided to the next pumper in the relay.
	8.2.3 Produce a foam fire stream, given foam-producing equipment, so that the correct proportion of foam is provided.
Aircraft Rescue and Fire-Fighting Apparatus	
General	Operations
9.1.1 Perform the visual and operational checks on the systems and components specified in the following list in addition to those in 4.2.1, given an ARFF vehicle and the manufacturer's servicing, testing, and inspection criteria, and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified: (1) Agent dispensing systems (2) Secondary extinguishing systems (3) Vehicle-mounted breathing air systems	9.2.1 Maneuver and position an ARFF vehicle, given an incident location and description that involves the largest aircraft that uses the airport, so that the vehicle is positioned for correct operation at each operational position for the aircraft.

(continues)

Table C.1 *Continued*

9.1.2 Operate an ARFF vehicle, given a predetermined route on an airport that includes the maneuvers listed in 4.3.1, and operation in all aircraft movement areas, so that the vehicle is operated in compliance with all applicable federal, state/provincial, tribal, and local laws and departmental rules and regulations.	9.2.2 Produce a fire stream while the vehicle is in both forward and reverse power modulation, given a discharge rate and intended target, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is moved and monitored for potential problems.
9.1.3 Operate an ARFF apparatus, given a predetermined route, off of an improved surface that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable departmental rules and regulations and the design limitations of the vehicle.	9.2.3 Produce a fire stream, given a rate of discharge and water supplied from the sources specified in the following list, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is monitored for potential problems: (1) The internal tank (2) Pressurized source (3) Static source in fire apparatus equipped with drafting capabilities
Mobile Water Supply Apparatus	
General	Operations
10.1.1 Perform the visual and operational checks on the systems and components specified in the following list, in addition to those specified in 4.2.1, given a fire department mobile water supply apparatus, and policies and procedures of the jurisdiction, so that the operational readiness of the mobile water supply apparatus is verified: (1) Water tank and other extinguishing agent levels (if applicable) (2) Pumping system (if applicable) (3) Rapid dump system (if applicable) (4) Foam system (if applicable)	10.2.1 Maneuver and position a mobile water supply apparatus at a water shuttle fill site, given a fill site location and one or more supply hose, so that the apparatus is positioned, supply hose are attached to the intake connections without having to stretch additional hose, and no objects are struck at the fill site.
	10.2.2 Maneuver and position a mobile water supply apparatus at a water shuttle dump site, given a dump site and a portable water tank, so that all of the water being discharged from the apparatus enters the portable tank and no objects are struck at the dump site.
	10.2.3 Establish a water shuttle dump site, given two or more portable water tanks, low-level strainers, water transfer equipment, fire hose, and a fire apparatus equipped with a fire pump, so that the tank being drafted from is kept full at all times, the tank being dumped into is emptied first, and the water is transferred from one tank to the next.

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 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 fire fighters lose their lives in the line of duty in the United States; about one 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, 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 “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 fire fighters 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 fire fighters 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 fire fighters, based on the duties they are expected to perform.
- (7) Create a national research agenda and data collection system that relates to the initiatives.