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NFPA 1033 Professional Qualifications for Fire Investigator 1993 Edition

National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101
An International Codes and Standards Organization

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

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

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

Statement on NFPA Procedures

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

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NFPA 1033

Standard for

Professional Qualifications for Fire Investigator

1993 Edition

This edition of NFPA 1033, *Standard for Professional Qualifications for Fire Investigator*, was prepared by the Technical Committee on Fire Investigator Professional Qualifications, released by the Correlating Committee on Professional Qualifications, and acted on by the National Fire Protection Association, Inc. at its Fall Meeting held November 16-18, 1992, in Dallas, Texas. It was issued by the Standards Council on January 15, 1993, with an effective date of February 12, 1993, and supersedes all previous editions.

The 1993 edition of this document has been approved by the American National Standards Institute.

Origin and Development of NFPA 1033

In 1972, the Joint Council of National Fire Service Organizations (JCNFSO) created the National Professional Qualifications Board for the Fire Service (NPQB) 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) standard-making system. The initial committees addressed the following jobs: fire fighter, fire officer, fire service instructor, and fire inspector and investigator.

The original concept of the professional qualification 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 for a given field. Accordingly, the strict career ladder concept was revised to allow civilian entry into many of the fields, except for the progression from fire fighter to fire officer. These revisions facilitated the use of the documents by other than the uniformed fire services.

The Committee on Fire Inspector and Investigator Professional Qualifications met from 1973 through 1977 and produced the first edition of NFPA 1031, *Professional Qualifications for Fire Inspector, Fire Investigator, and Fire Prevention Education Officer*. This document was adopted by the Association in May of 1977.

Subsequent to the adoption of the initial edition, the Committee met regularly to revise and update the standard. In 1986, the Joint Council directed the Committee to develop separate documents for each of the job functions the original document addressed. This direction was coupled with the decision to remove the job of fire investigator from the strict career path previously followed and allow for civilian entry. The first edition of this new document, NFPA 1033, *Standard for Professional Qualifications for Fire Investigator*, was adopted by the Association in June of 1987.

In 1990, responsibility for the appointment of Professional Qualifications committees and the development of the Professional Qualifications Standards was assumed by the NFPA. The Professional Qualifications Correlating Committee was appointed by the NFPA Standards Council and assumed the responsibility for coordinating the requirements of all of the documents in the Professional Qualifications system.

The Technical Committee on Fire Investigator Professional Qualifications was established by the NFPA Standards Council in 1990 based on a recommendation by the Professional Qualifications Correlating Committee. This recommendation addressed the need for specific expertise in the area of fire investigation to review and revise the existing document. This committee met numerous times in 1990 and 1991 to complete a job task analysis and develop specific job performance requirements for the job of fire investigator. During this process, the committee was saddened by the loss of one of its members, George T. Lewis, Fire Marshal of Delaware County, PA.

The intent of the Technical Committee was to develop 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 investigator. These job performance requirements are applicable to fire investigators both public and private.

Correlating Committee on Professional Qualifications

Douglas P. Forsman, *Chairman*
Champaign Fire Dept., IL

Jon C. Jones, *Secretary*
National Fire Protection Assn.
(Nonvoting)

Louis J. Amabili, Delaware State Fire School
Rep. Int'l Society of Fire Service Instructors
Stephen P. Austin, State Farm Fire & Casualty Co.
Rep. Int'l Assn. of Arson Investigators, Inc.
Dan W. Bailey, USDA Forest Service
Gene P. Carlson, Oklahoma State University, OK
Rep. Int'l Fire Service Training Assn.
Jack K. McElfish, Clayton Cnty Fire Dept., GA
Rep. Int'l Assn. of Fire Chiefs
Mary Nachbar, Minnesota State Fire Marshal Division
William Peterson, Plano Fire Dept., TX
Rep. Int'l Fire Service Training Assn.
John P. Wolf, University of Kansas, KS
Ted Vratny, Boulder Regional Communications Ctr., CO

Technical Committee on Fire Investigator Professional Qualifications

Stephen P. Austin, *Chairman*
State Farm Fire & Casualty Co., DE
Rep. Int'l Assn. of Arson Investigators, Inc.

Billy L. Buckley, S E A, Inc., FL
Roger A. Furrow, Grinnell Mutual Reinsurance, IA
Mary M. Galvin, State of Connecticut, CT
David B. Hooton, TechniFire Services Co., TN
Thomas E. Minnich, U.S. Fire Administration, MD
J. Brooks Semple, Smoke/Fire Risk Mgmt. Inc., VA
Barry W. Slotter, Robins, Kaplan, Miller & Ciresi, GA
Dennis W. Smith, Atlantic City Fire Dept., NJ
Rep. T/C Fire Investigations
Robert A. Stellingworth, Bureau of Alcohol, Tobacco & Firearms, DC

Alternates

John F. Goetz, Bureau of Alcohol, Tobacco & Firearms, PA
(Alt. to R. A. Stellingworth)
Joseph P. Toscano, State Attorney's Office New Haven, CT
(Alt. to M. M. Galvin)
Jack A. Ward, Universal Fire Specialists, Inc., FL
(Alt. to S. P. Austin)

Jon C. Jones, NFPA Staff Liaison

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

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

Committee Scope: To develop and prepare minimum standards of professional competence required of fire investigators.

Contents

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Standard for

Professional Qualifications for Fire Investigator

1993 Edition

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

Information on referenced publications can be found in Chapter 4 and Appendix B.

Chapter 1 Administration

1-1 Scope. This standard identifies the professional level of performance required for fire investigators. It specifically identifies the job performance requirements necessary to perform as a fire investigator.

1-2* Purpose. The purpose of this standard is to specify in terms of minimum job performance requirements the minimum standards required for service as a fire investigator in both the private and public sectors. It is not the intent of this standard to restrict any jurisdiction from exceeding these minimum requirements. Job performance requirements describe the performance required for a specific job. The complete list of requirements for each duty describes the tasks an individual must be able to perform in order to successfully carry out that duty; however, they are not intended to measure a level of knowledge. Together, the duties and job performance requirements define the parameters of the job of fire investigator.

1-3 General.

1-3.1 The fire investigator shall be at least age 18.

1-3.2 The fire investigator shall have a high school diploma or a state recognized equivalent.

1-3.3 The authority having jurisdiction shall conduct a thorough background and character investigation prior to accepting an individual as a candidate for certification as a fire investigator.

1-3.4 The job performance requirements for fire investigator shall be completed in accordance with recognized practices and procedures or as they are defined by law or by the authority having jurisdiction.

1-3.5* The job performance requirements defined in this standard need not be mastered in the order in which they appear. Training agencies or authorities shall establish programs that prepare individuals to meet the requirements defined in this standard.

1-3.6 Evaluation of job performance requirements shall be by individuals approved by the authority having jurisdiction. The evaluator shall be qualified to conduct the evaluation of an investigator.

1-3.7* The fire investigator shall remain current with investigation methodology, fire protection technology, and current code requirements by attending workshops/seminars, and/or through professional publications and journals.

Chapter 2 Definitions

Approved. Acceptable to the "authority having jurisdiction."

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

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

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

Due Process. The compliance with the criminal and civil laws/procedures within the jurisdiction where the incident occurred.

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

Fire Investigator. An individual who has demonstrated the skills and knowledge necessary to conduct, coordinate, and complete an investigation.

Investigation. A systematic inquiry or examination.

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.

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

Listed. Equipment or materials included in a list published by an organization acceptable to the "authority having jurisdiction" and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or materials and whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

NOTE: The means for identifying listed equipment may vary for each organization concerned with product evaluation, some of which do not recognize equipment as listed unless it is also labeled. The "authority having jurisdiction" should utilize the system employed by the listing organization to identify a listed product.

Prerequisite Knowledge. Fundamental knowledge required in order to perform a specific task.

Prerequisite Skills. The essential skills required in order to perform a specific task.

Shall. Indicates a mandatory requirement.

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

Special Tools. Tools of a specialized or unique nature that may not be required for every fire investigation as are the standard equipment and tools. Examples include heavy equipment, hydrocarbon detectors, microscopes, flash point testers, etc.

Standard Equipment and Tools. Standard equipment and tools are: a 35-mm camera, flash, and film; flashlight; shovel; broom; hand tools; tape measure; and evidence collection containers.

Task. A specific job behavior or activity.

Chapter 3 Fire Investigator

3-1 General.

3-1.1* The fire investigator shall meet the job performance requirements defined in Sections 3-2 through 3-7. In addition, the fire investigator shall meet the requirements of 2-2.1 through 2-2.3 of NFPA 472, *Standard for Professional Competence of Responders to Hazardous Materials Incidents*.

3-1.2 The fire investigator shall maintain appropriate liaison with other interested professionals during an investigation.

3-1.3* The fire investigator shall ensure that due process of law is served.

3-2 Scene Examination.

3-2.1 Description of Duty. To inspect/evaluate the scene so as to determine the area/point of origin, source of ignition, material(s) ignited, act or activity that brought ignition source and materials together, and assess the subsequent progression, extinguishment, and containment of the fire.

3-2.2 Secure the fire ground, given marking devices, sufficient personnel and special tools and equipment, so that unauthorized persons can recognize the perimeters of the investigative scene, are kept from restricted areas, and all evidence or potential evidence is protected from damage or destruction.

3-2.2.1 *Prerequisite Knowledge:* Knowledge of fire ground hazards, types of evidence, and the importance of fire scene security and evidence preservation.

3-2.2.2 *Prerequisite Skill:* Use of marking devices.

3-2.3 Conduct an exterior survey, given standard equipment and tools, so that evidence is preserved, fire damage is interpreted, hazards are identified to avoid injuries, accessibility to the property is determined, and all potential means of ingress/egress are discovered.

3-2.3.1 *Prerequisite Knowledge:* Knowledge of the types of building construction and the effects of fire upon construction materials, types of evidence commonly found in the perimeter, evidence preservation methods, the effects of fire suppression, fire behavior/spread, and burn patterns.

3-2.3.2 *Prerequisite Skill:* Assess fire ground and structural condition, observe the damage and effects of the fire, and interpret burn patterns.

3-2.4 Conduct an interior survey, given standard equipment and tools, so that areas of potential evidentiary value requiring further examination are identified and preserved, the evidentiary value of contents is determined, and hazards are identified to avoid injuries.

3-2.4.1 *Prerequisite Knowledge:* Knowledge of the types of building construction and interior finish and the effects of fire upon those materials, the effects of fire suppression, fire behavior/spread, evidence preservation methods, burn patterns, effects of building contents on fire growth, and the relationship of contents to the overall investigation.

3-2.4.2 *Prerequisite Skill:* Assess structural conditions, observe the damage and effects of the fire, discover the impact of fire suppression efforts on fire flow and heat propagation, and evaluate protected areas to determine the presence and/or absence of contents.

3-2.5 Interpret burn patterns, given standard equipment and tools and some structural/content remains, so that each individual pattern is evaluated with respect to the burning characteristics of the material involved.

3-2.5.1 *Prerequisite Knowledge:* Knowledge of fire development and the interrelationship of heat release rate, form, and ignitability of materials.

3-2.5.2 *Prerequisite Skill:* Interpret the effects of burning characteristics on different types of materials.

3-2.6 Correlate burn patterns, given standard equipment and tools and some structural/content remains, so that fire development is determined, methods and effects of suppression are evaluated, false origin area patterns are recognized, and all areas of origin are correctly identified.

3-2.6.1 *Prerequisite Knowledge:* Knowledge of fire behavior/spread based on fire chemistry and physics, fire suppression effects, and building construction.

3-2.6.2 *Prerequisite Skill:* Interpret variations of burn patterns on different materials with consideration given to heat release rate, form, and ignitability; distinguish impact of different types of fuel loads; evaluate fuel trails; and analyze and synthesize information.

3-2.7 Examine and remove fire debris, given standard equipment and tools, so that all debris is checked for fire cause evidence, the ignition source(s) is identified, the fire cause is determined, and evidence is preserved without investigator-inflicted damage or contamination.

3-2.7.1 *Prerequisite Knowledge:* Basic understanding of ignition processes, characteristics of ignition sources, and ease of ignition of fuels, debris-layering techniques, use of tools and equipment during the debris search, types of fire cause evidence commonly found in various degrees of damage, and evidence-gathering methods and documentation.

3-2.7.2 *Prerequisite Skill:* Employ search techniques that further the discovery of fire cause evidence and ignition sources, use search techniques that incorporate documentation, and collect and preserve evidence.

3-2.8 Reconstruct the area of origin, given standard and, if needed, special equipment and tools as well as sufficient personnel, so that all protected areas and burn patterns are identified and correlated to contents/structural remains, items potentially critical to cause determination and photo documentation are returned to their pre-fire location, and the point(s) of origin is discovered.

3-2.8.1 *Prerequisite Knowledge:* Knowledge of the effects of fire on different types of material and the importance and uses of reconstruction.

3-2.8.2 *Prerequisite Skill:* Examine all materials to determine the effects of fire, identify and distinguish among different types of fire-damaged contents, and return materials to their original position using protected areas and burn patterns.

3-2.9* Inspect the performance of building systems, including detection, suppression, HVAC, utilities, and building compartmentation, given standard and special equipment and tools, so that a determination can be made as to the need for expert resources, an operating systems impact on fire growth and spread is considered in identifying origin areas, and defeated systems are identified.

3-2.9.1 *Prerequisite Knowledge:* Different types of detection, suppression, HVAC, utility, and building compartmentation such as fire walls and fire doors; types of expert resources for building systems; the impact of fire on various systems; and common methods used to defeat a system's functional capability.

3-2.9.2 *Prerequisite Skill:* Determine the systems operation and its effect on the fire, identify alterations to building systems, and evaluate the impact of suppression efforts on building systems.

3-2.10 Discriminate the effects of explosions from other types of damage, given standard equipment and tools, so that an explosion is identified and its evidence is preserved.

3-2.10.1 *Prerequisite Knowledge:* Different types of explosions and their causes, characteristics of an explosion, and the difference between low- and high-order explosions.

3-2.10.2 *Prerequisite Skill:* Identify explosive effects on glass, walls, foundations, and other building materials; distinguish between low- and high-order explosion effects; and analyze damage to document the blast zone and origin.

3-3 Documenting the Scene.

3-3.1 Duties shall include diagramming the scene, photographing, and taking field notes to be used to compile a final report.

3-3.2 Diagram the scene, given standard tools and equipment, so that the scene is accurately represented and evidence, pertinent contents, significant patterns, and origin areas/points are identified.

3-3.2.1 *Prerequisite Knowledge:* Commonly used symbols and legends that clarify the diagram, types of evidence and patterns that need to be documented, and formats for diagramming the scene.

3-3.2.2 *Prerequisite Skills:* Ability to sketch the scene, basic drafting skills, and evidence recognition and observational skills.

3-3.3* Photographically document the scene, given standard tools and equipment, so that the scene is accurately depicted and the photographs appropriately support scene findings.

3-3.3.1 *Prerequisite Knowledge:* Working knowledge of a 35-mm camera and flash, types of 35-mm cameras, and types of film and flash available, as well as the strengths and limitations of each.

3-3.3.2 *Prerequisite Skills:* Ability to use a 35-mm camera and flash.

3-3.4 Construct investigative notes, given a fire scene, available documents (e.g., pre-fire plans, inspection reports, etc.), and interview information, so that the notes are accurate, provide further documentation of the scene, and represent complete documentation of the scene findings.

3-3.4.1 *Prerequisite Knowledge:* Relationship between notes, diagrams, and photos; how to reduce scene information into concise notes; and the use of notes during report writing and legal proceedings.

3-3.4.2 *Prerequisite Skills:* Data reduction skills, note taking skills, observational and correlating skills.

3-4 Evidence Collection/Preservation.

3-4.1 Duties shall include using proper physical and legal procedures to retain evidence required within the investigation.

3-4.2 Utilize proper procedures for managing victims and fatalities, given a protocol and appropriate personnel, so that all evidence is discovered and preserved and the protocol procedures are followed.

3-4.2.1 *Prerequisite Knowledge:* Types of evidence associated with fire victims and fatalities and evidence preservation methods.

3-4.2.2 *Prerequisite Skills:* Observational skills and the ability to apply protocols to given situations.

3-4.3 Select appropriate evidence for analysis, given information from the investigative file, so that samples forwarded for analysis support specific investigative needs.

3-4.3.1 *Prerequisite Knowledge:* Knowledge of the capabilities of the services performing the analysis, purposes for submitting samples, and types of analytical services available.

3-4.3.2 *Prerequisite Skills:* Evaluate the fire incident to determine forensic, engineering, or laboratory needs.

3-4.4 Collect and package evidence, given standard tools and equipment and evidence collection materials, so that evidence is identified, preserved, collected, and packaged to avoid contamination and investigator-inflicted damage and the chain of custody is established.

3-4.4.1 *Prerequisite Knowledge:* Types of evidence (exclusionary or fire-cause supportive evidence), types of laboratory tests available, packaging techniques and materials, and impact of evidence collection on the investigation.

3-4.4.2 *Prerequisite Skills:* Ability to recognize different types of evidence and determine evidence critical to the investigation.

3-4.5 Maintain a chain of custody, given standard investigative tools, marking tools, and evidence tags/logs, so that written documentation exists for each piece of evidence and evidence is secured.

3-4.5.1 *Prerequisite Knowledge:* Rules of custody and transfer procedures, types of evidence (e.g., physical evidence obtained at the scene, photos, documents, etc.), and methods of recording the chain of custody.

3-4.5.2 *Prerequisite Skills:* Ability to execute the chain of custody procedures and accurately complete necessary documents.

3-4.6 Dispose of evidence, given jurisdictional/agency regulations and file information, so that the disposal is timely, safely conducted, and in compliance with jurisdictional/agency requirements.

3-4.6.1 *Prerequisite Knowledge:* Disposal services available and common disposal procedures and problems.

3-4.6.2 *Prerequisite Skill:* Documentation skills.

3-5 Interview/Interrogation.

3-5.1 Duties shall include obtaining information regarding the overall fire investigation from others through verbal communication.

3-5.2 Develop an interview plan, given no special tools or equipment, so that the plan reflects a strategy to further determine the fire cause and affix responsibility and includes a relevant questioning strategy for each individual to be interviewed that promotes the efficient use of the investigator's time.

3-5.2.1 *Prerequisite Knowledge:* Persons who may provide information that furthers the fire cause determination or the affixing of responsibility, types of questions that are pertinent and efficient to ask of different information sources (fire department, neighbors, witnesses, suspects, etc.), and pros and cons of interviews versus document gathering.

3-5.2.2 *Prerequisite Skill:* Planning skills, development of focused questions for specific individuals, and evaluation of existing file data to help develop questions and fill investigative gaps.

3-5.3 Conduct interviews or interrogations, given incident information, so that pertinent information is obtained, follow-up questions are asked, responses to all questions are elicited, and the response to each question is documented accurately.

3-5.3.1 *Prerequisite Knowledge:* Knowledge of types of interviews, personal information needed for proper documentation or follow-up, documenting methods and tools, and types of nonverbal communications and their meaning.

3-5.3.2 *Prerequisite Skill:* Adjust interviewing strategies based on deductive reasoning, interpret verbal and nonverbal communications, apply applicable legal requirements, and exhibit strong listening skills.

3-5.4 Evaluate interview information, given interview transcripts or notes and incident data, so that all interview data is individually analyzed and correlated with all other interviews, corroborative and conflictive information is documented, and new leads are discovered.

3-5.4.1 *Prerequisite Knowledge:* Types of interviews, report evaluation methods, and data correlating methods.

3-5.4.2 *Prerequisite Skill:* Data correlating skills and the ability to evaluate source information (e.g., fire department, witness, etc.).

3-6 Post-Incident Investigation.

3-6.1 Duties shall include the investigation of all factors beyond the fire scene at the time of the origin and cause determination.

3-6.2 Gather reports and records, given no special tools, equipment, or materials, so that all gathered documents are appropriate to the investigation, complete, and authentic, the chain of custody is maintained, and the material is acceptable to the courts.

3-6.2.1 *Prerequisite Knowledge:* Types of reports needed that facilitate determining responsibility for the fire (e.g., police reports, fire reports, insurance policies, financial records, deeds, private investigator reports, outside photos, and videos, etc.) and location of these reports.

3-6.2.2 *Prerequisite Skills:* Identify the proper reports and documents necessary for the investigation, implementing the chain of custody, and organizational skills.

3-6.3 Evaluate the investigative file, given all available file information, so that areas for further investigation are

identified, the relationship between gathered documents and information is interpreted, and corroborative evidence and information discrepancies are discovered.

3-6.3.1 *Prerequisite Knowledge:* File assessment and/or evaluation methods, proper and acceptable documentation, and proper contents of investigative findings and gathered documentation.

3-6.3.2 *Prerequisite Skills:* Information assessment and correlation skills and organizational skills.

3-6.4 Coordinate expert resources, given the investigative file, reports, and documents, so that the expert's competencies are matched to the specific investigation needs, financial expenditures are justified, and utilization clearly furthers the investigation toward the goals of causation determination or affixing responsibility.

3-6.4.1 *Prerequisite Knowledge:* Knowledge of the investigator's own expertise, qualifications needed for expert testimony, types of expert resources (e.g., forensic, CPA, polygraph, financial, human behavioral disorders, engineering, etc.), and methods to identify expert resources.

3-6.4.2 *Prerequisite Skills:* Recognize the value of expert resources to further the investigation, network with other investigators to identify experts, question experts relative to their qualifications, and plan utilization of expert resources.

3-6.5 Establish evidence as to motive and/or opportunity, given an incendiary fire, so that the evidence is the result of a prudent and complete investigation, is supported by documentation, and the evidence meets the evidentiary requirements of the jurisdiction.

3-6.5.1 *Prerequisite Knowledge:* Types of motives common to incendiary fire investigation, methods used to discover opportunity, and understanding human behavioral patterns relative to fire setting.

3-6.5.2 *Prerequisite Skills:* Financial analysis, records gathering and analysis, interviewing, and interpreting fire scene information and evidence for relationship to motive and/or opportunity.

3-6.6 Formulate an opinion of the person(s) and/or product(s) responsible for the fire, given all investigative findings, so that the opinion regarding responsibility for a fire is supported by all records, reports, documents, and evidence.

3-6.6.1 *Prerequisite Knowledge:* Analytical methods and procedures such as data reduction matrixing, hypothesis testing, and systems analysis, etc.

3-6.6.2 *Prerequisite Skills:* Analytical and assimilation skills.

3-7 Presentations.

3-7.1 Duties shall include the ability to present findings to those individuals not involved in the actual investigation.

3-7.2 Prepare a written investigation report, given investigative findings, documentation, and a specific audience, so that the report accurately reflects the investigative findings, is concise, expresses the investigator's opinion, and is appropriate for the intended audience(s).

3-7.2.1 *Prerequisite Knowledge:* Elements of writing, typical components of a written report, and types of audiences and their respective needs.

3-7.2.2 *Prerequisite Skills:* Writing skills, ability to analyze information and apply deductive reasoning, and ability to determine the reader's needs.

3-7.3 Express investigative findings verbally, given investigative findings, notes, a time allotment, and a specific audience, so that the information is accurate, the presentation is completed within the allotted time, and the presentation includes only need-to-know information for the intended audience.

3-7.3.1 *Prerequisite Knowledge:* Types of investigative findings, the informational needs of various types of audiences, and the impact of releasing information.

3-7.3.2 *Prerequisite Skills:* Communication skills, ability to determine audience needs, and ability to correlate findings.

3-7.4 Testify during legal proceedings, given investigative findings, contents of reports, and consultation with legal counsel, so that all pertinent investigative information is presented clearly and accurately and the investigator's demeanor is appropriate to the proceedings.

3-7.4.1 *Prerequisite Knowledge:* Types of investigative findings, understanding of the types of legal proceedings, appropriate demeanor for each, and an understanding of legal proceedings.

3-7.4.2 *Prerequisite Skills:* Communication and listening skills; ability to differentiate facts from opinions; and ability to determine appropriate procedures, practices, and etiquette during legal proceedings.

3-7.5 Conduct public informational presentations, given relative data, so that information is accurate, appropriate to the audience, and clearly supports the information needs of the audience.

3-7.5.1 *Prerequisite Knowledge:* Types of data available regarding the fire loss problem and the issues about which the community must know.

3-7.5.2 *Prerequisite Skills:* Ability to assemble, organize, and present information.

Chapter 4 Referenced Publications

4-1 The following document or portions thereof are referenced within this standard and shall be considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

4-1.1 NFPA Publication. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 472, *Standard for Professional Competence of Responders to Hazardous Materials Incidents*, 1992 edition.

Appendix A

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

A-1-2 See Appendix C.

A-1-3.5 See Appendix C.

A-1-3.7 Fire investigation technology and practices are changing rapidly. It is essential for an investigator's performance and knowledge to remain current. It is recommended that investigators be familiar with the technical information and procedural guidance presented in materials such as NFPA 921, *Guide for Fire and Explosion Investigations*, and NFPA 907M, *Manual for the Determination of Electrical Fire Causes*.

A-3-1.1 Chapter 10 of NFPA 921, *Guide for Fire and Explosion Investigations*, also provides the investigator with guidance.

A-3-1.3 It is understood that fire investigators with arrest powers, fire investigators without arrest powers, and private sector fire investigators may utilize this standard. The following is a list of those due process issues that are critical to the fire investigation field. It is the responsibility of the authority having jurisdiction to select those issues that are pertinent to its respective agency or organization. Those selected issues should then serve as the measurement criteria or training guideline for the authority having jurisdiction.

Due process issues (stated in task terms): Conduct search and seizure, conduct arrests, conduct interviews and interrogations, maintain chain of custody, utilize criminal and civil statutes applicable to the situation, and interpret and utilize contract law and insurance law. Show due process of civil rights laws, privacy laws, the fair credit reporting act, laws of trespass and invasion of privacy, laws of libel and slander, laws of punitive damages and attorney-client privilege, and other rules of evidence and law applicable to the authority having jurisdiction.

A-3-2.9 Examples of tampered systems: Fire doors propped open, sprinkler systems shut down, detection systems disabled. Examples of proper operating systems: Fire doors, sprinkler activation systems, shutdown of HVAC systems, automatic utility shutoff.

A-3-3.3 The use of a 35-mm camera or other similar high quality format is highly recommended. The use of various video camera systems to supplement visual documentation may be utilized and is encouraged.

Appendix B Referenced Publications

B-1 The following documents or portions thereof are referenced within this standard for informational purposes only and thus are not considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

B-1.1 NFPA Publication. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 907M, *Manual for the Determination of Electrical Fire Causes*, 1988 edition

NFPA 921, *Guide for Fire and Explosion Investigations*, 1992 edition.

Appendix C

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

Explanation of the Standards and Concepts of JPRs

The primary benefit of establishing national professional qualification standards is to provide both public and private sectors with a framework of the job requirements for the fire service. Other benefits include enhancement of the profession, individual as well as organizational growth and development, and standardization of practices.

NFPA professional qualification standards identify the minimum job performance requirements for specific fire service positions. The standards may be used for training design and evaluation, certification, measuring and critiquing on-the-job performance, defining hiring practices, and setting organizational policies, procedures, and goals (other applications are encouraged).

Professional qualification standards for a specific job are organized by major areas of responsibility defined as duties. For example, the fire fighter's duties may include fire suppression, rescue, and water supply; and the Public Fire Educator's duties may include education, planning and development, and administration. Duties are major functional areas of responsibility within a job.

The professional qualification standards are written as job performance requirements (JPRs). Job performance requirements describe the performance required for a specific job. JPRs are grouped according to the duties of a job. The complete list of JPRs for each duty defines what an individual must be able to do in order to successfully perform that duty. Together, the duties and their JPRs define the job parameters; that is, the professional qualification standard as a whole is a job description.

Breaking Down the Components of a Job Performance Requirement

The job performance requirement is the assembly of three critical components. These components are as follows:

(1) Task to be performed.

(2) Tools, equipment, or materials that must be provided to successfully complete the task.

(3) Evaluation parameters and/or performance outcomes.

	Example
(1) Task	(1) Ventilate a pitched roof;
(2) Tools, equipment, or materials	(2) Given an ax, a pike pole, an extension ladder, and a roof ladder;
(3) Evaluation parameters and performance outcomes	(3) So that a 4-foot × 4-foot hole is created, all ventilation barriers are removed; ladders are properly positioned for ventilation; ventilation holes are correctly placed; and smoke, heat, and combustion by-products are released from the structure.

The task to be performed: The first component is a concise statement of what the person is supposed to do.

Tools, equipment, or materials that must be provided to successfully complete the task: This component ensures that all individuals completing the task are given the same minimal tools, equipment, or materials when being evaluated. By listing these items, the performer and evaluator know what must be provided in order to complete the task.

Evaluation parameters and/or performance outcomes: This component defines how well one must perform each task—for both the performer and evaluator. The JPR guides performance outcomes. This portion of the JPR promotes consistency in evaluation by reducing the variables used to gauge performance.

In addition to these three components, the JPR contains prerequisite knowledge and skills. Just as the term prerequisite suggests, these are the necessary knowledge and skills one must have prior to being able to perform the task. Prerequisite knowledge and skills are the foundation for task performance.

Once the components and prerequisites are put together, the JPR might read as follows:

Example 1:

The Fire Fighter I shall ventilate a pitched roof, given an ax, a pike pole, an extension ladder, and a roof ladder; so that a 4-foot × 4-foot hole is created; all ventilation barriers are removed; ladders are properly positioned for ventilation; and ventilation holes are correctly placed.

Prerequisite Knowledge: Pitched roof construction, safety considerations with roof ventilation, the dangers associated with improper ventilation, knowledge of ventilation tools, the effects of ventilation on fire growth, smoke movement in structures, signs of backdraft, and the knowledge of vertical and forced ventilation.

Prerequisite Skills: Remove roof covering; properly initiate roof cuts; use the pike pole to clear ventilation barriers; use ax properly for sounding, cutting, and stripping; position ladders; and climb and position self on ladder.

Example 2:

The Fire Investigator shall interpret burn patterns, given standard equipment and tools and some structural/content remains, so that each individual pattern is evaluated with respect to the burning characteristics of the material involved.

Prerequisite Knowledge: Knowledge of fire development and the interrelationship of heat release rate, form, and ignitability of materials.

Prerequisite Skill: Interpret the effects of burning characteristics on different types of materials.

Examples of Potential Uses

Certification:

JPRs can be used to establish the evaluation criteria for certification at a specific job level. When used for certification, evaluation must be based on the successful completion of JPRs.

First, the evaluator verifies the attainment of prerequisite knowledge and skills prior to JPR evaluation. This might be through documentation review or testing.

Next, the candidate is evaluated on completing the JPRs. The candidate performs the task and is *evaluated* based on the evaluation parameters and/or performance outcomes. This performance-based evaluation can be either practical (for psychomotor skills* such as "ventilate a roof") or written (for cognitive skills* such as "interpret burn patterns").

Using Example 1, a practical performance-based evaluation would measure the ability to *"ventilate a pitched roof."* The candidate passes this particular evaluation if the standard was met, i.e., a 4-foot × 4-foot hole was created; all ventilation barriers were removed; ladders were properly positioned for ventilation; ventilation holes were correctly placed; and smoke, heat, and combustion by-products were released from the structure.

For Example 2, when evaluating the task *"interpret burn patterns,"* the candidate could be given a written assessment in the form of a scenario, photographs, and drawings and then be asked to respond to specific written questions related to the JPRs evaluation parameters.

* NOTE: Psychomotor skills are those physical skills that can be demonstrated or observed. Cognitive skills (or mental skills) cannot be observed, but rather are evaluated on how one completes the task (process oriented) or on the task outcome (product oriented).

Remember, when evaluating performance, candidates must be given the tools, equipment, or materials listed in the JPR before they can be properly evaluated, e.g., an ax, a pike pole, an extension ladder, and a roof ladder.

Curriculum Development/Training Design and Evaluation:

The statements contained in this document that refer to job performance were designed and written as job performance requirements. While a resemblance to instructional objectives may be present, these statements should not be used in a teaching situation until after they have been modified for instructional use.

Job performance requirements state the behaviors required to perform specific skill(s) on the job, as opposed to a learning situation. These statements should be converted into instructional objectives with behaviors, conditions, and standards that can be measured within the teaching/learning environment. A job performance requirement that requires a fire fighter to "ventilate a pitched roof" should be converted into a measurable instructional objective for use when teaching the skill. (*See Figure C-1.*)

Using Example 1, a terminal instructional objective might read as follows:

The candidate will ventilate a pitched roof, given a simulated roof, an ax, a pike pole, an extension ladder, and a

Converting JPRs into Instructional Objectives

The JPR, Prerequisite Knowledge, and Pre-requisite Skillls are all used as information from which instructional objectives can be written.

JPR

The Fire Fighter I shall ventilate a pitched roof given an axe, a pike pole, an extension ladder, and a roof ladder so that a 4 foot x 4-foot hole is created, all ventilation barriers are removed, ladders are properly positioned for ventilations, and ventilation holes are correctly placed.

Prerequisite Knowledge:

Pitched roof construction; safety considerations with roof ventilation; the dangers associated with improper ventilation; knowledge of ventilation tools; the effects of ventilation on fire growth; smoke movement in structures; signs of backdraft; and the knowledge of vertical and forced ventilation.

Prerequisite Skills:

Remove roof covering; properly initiate roof cuts; use the pike pole to clear ventilation barriers; use axe properly for sounding, cutting, and stripping; position ladders; and climb and position self on ladder.

JPRs may be converted into any Instructional Objective format. For demonstration purposes, these examples have been written as Terminal and Example Objectives.

EXAMPLE TERMINAL OBJECTIVES

(Cognitive/Knowledge Domain)

The Fire Fighter shall describe the methods, processes, and safety precautions to be taken in order to perform ventilation on a pitched roof in a safe manner.

EXAMPLE: ENABLING OBJECTIVES
(Cognitive)

The Fire Fighter shall list the safety precautions to be taken when performing roof ventilation as stated in the "XYZ" ventilation manual, with "X" percent accuracy on a written evaluation

The Fire Fighter shall explain the effects of ventilation on fire growth as it relates to fire spread, intensity and movement through structures, with "X" percent acccuracy on a written evaluation.

Given the conditions surrounding an incident, the Fire Fighter will identify backdraft, flashover, and other dangerous conditions created by fire and the effects of ventilation on these conditions with "X" percent accuracy on a written evaluation.

(Psychomotor/Skills Domain)
(see example skills checklist)

The Fire Fighter shall demonstrate ventilating a pitched roof, given the proper tools, within 5 minutes and with 100 percent accuracy on the skills checklist.

EXAMPLE: ENABLING OBJECTIVES
(Psychomotor)

The Fire Fighter shall demonstrate removing roof covering in order to prepare a roof for ventilation with 100 percent accuracy on the skills checklist.

The Fire Fighter shall demonstrate the removal of ventilation obstructions (ceiling materials, insulation, etc.) in order to clear the ventilation opening with 100 percent accuracy on the skills checklist.

The Fire Fighter shall demonstrate the proper use of firefighting tools used for ventilation with 100 percent accuracy on the skills checklist.

Figure C-1 Converting JPRs into Instructional Objectives.

Skills Checklist (Roof Ventilation)

OBJECTIVE: The Fire Fighter shall demonstrate ventilating a pitched roof, given the proper tools, within 5 minutes and with 100 percent accuracy on the skills checklist.

YES	NO	
☐	☐	1. 4' X 4' hole was created.
☐	☐	2. All ventilation barriers were removed.
☐	☐	3. Ladders were properly positioned.
☐	☐	4. Ventilation holes were correctly placed (directly over fire, highest point, etc.).
☐	☐	5. Task completed within 5 minutes. (Time to complete task: _____).

Figure C-2 Skills Checklist.

roof ladder, so that 100 percent accuracy is attained on a skills checklist. (At a minimum, the skills checklist should include each of the measurement criteria from the JPR.)

Figure C-2, is a sample checklist for use in evaluating this objective.

While the differences between job performance requirements and instructional objectives are subtle in appearance, the purpose of each statement differs greatly. JPRs state what is necessary to perform the job in the "real world." Instructional objectives, however, 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 will be able to clarify performance expectations and avoid confusion related to using statements designed for purposes other than teaching. Additionally, instructors will be able to add local/state/regional elements of performance into the standards as intended by the developers.

Prerequisite skills and knowledge should be converted into enabling objectives. These help to define the course content. The course content should include each of the prerequisite knowledge and skills. Using Figure C-2, the enabling objectives are pitched roof construction, safety considerations with roof ventilation, remove roof covering, properly initiate roof cuts, etc. These ensure that the course content supports the terminal objective.

NOTE: It is assumed that the reader is familiar with curriculum development or training design and evaluation.

Other Uses

While the professional qualifications standards are principally used to guide the development of training and certification programs, there are a number of other potential uses for these documents. Because they are written in JPR terms, they lend themselves well to any area of the profession where a level of performance or expertise must be determined. Such areas might include:

Employee Evaluation/Performance Critiquing. The JPRs 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 when those tasks are completed.

Establishing Hiring Criteria. Professional qualifications standards may be used in a number of ways to further the establishment of hiring criteria. The Authority Having Jurisdiction might simply require certification at a specific job level, e.g., Fire Fighter I. The JPRs might also be used as the basis for pre-employment screening by establishing 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.

Employee Development. The professional qualifications standards can be useful to both the employee and the employer in developing a plan for the individual's growth within the organization. The JPRs and the associated prerequisite skills and knowledge can be used as a guide to determine additional training and education required for the employee to master the job or profession.

Succession Planning. Succession planning or career pathing addresses the efficient placement of people into jobs in response to current needs and anticipated future needs. A career development path can be established for targeted individuals to prepare them for growth within the organization. The JPRs and prerequisite knowledge and skills could then be used to develop an educational path to aid in the individual's advancement within the organization or profession.

Establishing Organizational Policies, Procedures, and Goals. The JPRs can be incorporated into organizational policies, procedures, and goals where employee performance is addressed.

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The NFPA Codes and Standards Development Process

Since 1896, one of the primary purposes of the NFPA has been to develop and update the standards covering all areas of fire safety.

Calls for Proposals
The code adoption process takes place twice each year and begins with a call for proposals from the public to amend existing codes and standards or to develop the content of new fire safety documents.

Report on Proposals
Upon receipt of public proposals, the technical committee members meet to review, consider, and act on the proposals. The public proposals – together with the committee action on each proposal and committee-generated proposals – are published in the NFPA's Report on Proposals (ROP). The ROP is then subject to public review and comment.

Report on Comments
These public comments are considered and acted upon by the appropriate technical committees. All public comments – together with the committee action on each comment – are published as the Committee's supplementary report in the NFPA's Report on Comments (ROC).

The committee's report and supplementary report are then presented for adoption and open debate at either of NFPA's semi-annual meetings held throughout the United States and Canada.

Association Action
The Association meeting may, subject to review and issuance by the NFPA Standards Council, (a) adopt a report as published, (b) adopt a report as amended, contingent upon subsequent approval by the committee, (c) return a report to committee for further study, and (d) return a portion of a report to committee.

Standards Council Action
The Standards Council will make a judgement on whether or not to issue an NFPA document based upon the entire record before the Council, including the vote taken at the Association meeting on the technical committee's report.

Voting Procedures
Voting at an NFPA Annual or Fall Meeting is restricted to members of record for 180 days prior to the opening of the first general session of the meeting, except that individuals who join the Association at an Annual or Fall Meeting are entitled to vote at the next Fall or Annual Meeting.

"Members" are defined by Article 3.2 of the Bylaws as individuals, firms, corporations, trade or professional associations, institutes, fire departments, fire brigades, and other public or private agencies desiring to advance the purposes of the Association. Each member shall have one vote in the affairs of the Association. Under Article 4.5 of the Bylaws, the vote of such a member shall be cast by that member individually or by an employee designated in writing by the member of record who has registered for the meeting. Such a designated person shall not be eligible to represent more than one voting privilege on each issue, nor cast more than one vote on each issue.

Any member who wishes to designate an employee to cast that member's vote at an Association meeting in place of that member must provide that employee with written authorization to represent the member at the meeting. The authorization must be on company letterhead signed by the member of record, with the membership number indicated, and the authorization must be recorded with the President of NFPA or his designee before the start of the opening general session of the Meeting. That employee, irrespective of his or her own personal membership status, shall be privileged to cast only one vote on each issue before the Association.