

# NFPA 1033

## Professional Qualifications for Fire Investigator 1987 Edition



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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.

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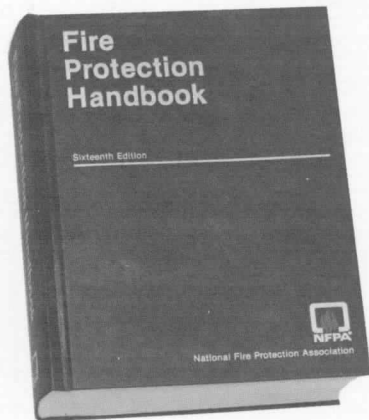
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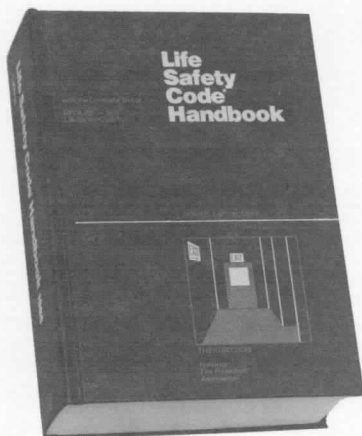


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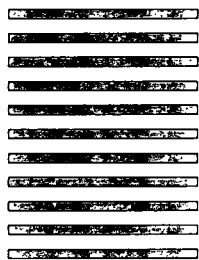
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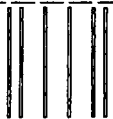
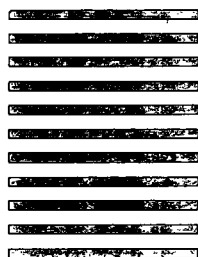
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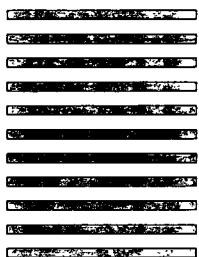
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**National Professional Qualifications System**  
**established by the**  
**Joint Council of National Fire Service Organizations**

**Constituent Members of the**  
**Joint Council of National Fire Service Organizations**

Fire Marshals Association of North America  
International Association of Arson Investigators  
International Association of Black Professional Fire Fighters  
International Association of Fire Chiefs  
International Association of Fire Fighters  
International Fire Service Training Association  
International Municipal Signal Association  
International Society of Fire Service Instructors  
Metropolitan Committee of International Association of Fire Chiefs  
National Fire Protection Association  
National Volunteer Fire Council

The Joint Council of National Fire Service Organizations consists of leaders of the principal national organizations representing the Fire Service of the United States. It meets periodically to review current developments and to establish areas of common interest where cooperative efforts of member organizations can be used for maximum results.

An important step in the establishment of national standards of professional competence for the fire service was taken by the Joint Council on October 25, 1972.

The Council decided that one area of common interest in which national collective action was desirable was in the establishment of standards upon which the levels of competency within the fire service could be determined.

A committee of the Council was delegated the responsibility of preparing an acceptable system for the development of the standards. Following several months of work, during which the suggestions of constituent organizations were incorporated, the Committee submitted the final proposal to the Joint Council and the following system was approved and established:

1. Committees to develop standards of professional competency, made up of peer group representation; and
2. An independent Board to oversee and validate standards developed and the implementation of such standards in a nationally coordinated continuing professional development program for the fire service.

The Secretariat for Committees and Board is to be provided by the staff of the National Fire Protection Association.

**1. Fire Service Professional Standards Development Committees**

There are four committees, each of which is made up of representatives of organizations which are constituent members of the Joint Council and certain other persons nominated by the Joint Council, collectively.

The four committees are respectively responsible for the development and preparation of recommended minimum standards of professional competence required of:

1. Fire Fighters
2. Fire Inspectors and Investigators

3. Fire Service Instructors
4. Fire Service Officers.

Each committee is established and operated under NFPA standards-making procedures with one important variation, which is that no draft standard shall be submitted to NFPA for final adoption until it has been approved by the National Professional Qualifications Board for the Fire Service.

Standards are prepared for use after final adoption as a basis for nationally standardized examinations by authorized agencies and the standards are available for adoption by federal, state and local authorities.

Committees do not determine, or become involved in, actual certification procedures or the direct implementation of the standards; they do assist implementing agencies by a continuing review and revision of the standards.

The authorized representation on each committee is as follows:

#### **1. Fire Fighter Qualifications Committee**

International Association of Fire Chiefs  
International Association of Fire Fighters  
International Association of Black Professional Fire Fighters  
International Fire Service Training Association  
International Society of Fire Service Instructors  
National Fire Protection Association  
Joint Council of National Fire Service Organizations

#### **2. Fire Inspector and Investigator Qualifications Committee**

Fire Marshals Association of North America  
International Association of Arson Investigators  
International Association of Fire Chiefs  
International Association of Fire Fighters  
National Fire Protection Association  
Joint Council of National Fire Service Organizations

#### **3. Fire Service Instructor Qualifications Committee**

International Association of Fire Chiefs  
International Association of Fire Fighters  
International Fire Service Training Association  
International Society of Fire Service Instructors  
National Fire Protection Association  
Joint Council of National Fire Service Organizations

#### **4. Fire Service Officer Qualifications Committee**

Fire Marshals Association of North America  
International Association of Fire Chiefs  
International Association of Fire Fighters  
International Association of Black Professional Fire Fighters  
International Society of Fire Service Instructors  
Metropolitan Committee of the International Association of Fire Chiefs  
National Fire Protection Association  
Joint Council of National Fire Service Organizations

#### **2. National Professional Qualifications Board for the Fire Service**

A nine-person Board appointed by the Joint Council to act on behalf of the Council in the following duties and responsibilities:

- (i) The Board is constituted to supervise a nationally coordinated continuing professional development program for the Fire Service.
- (ii) The Board shall be responsive to the needs and opinions of all groups involved with the Fire Service and of others, including individuals who have related interests.
- (iii) It shall identify and define levels of professional progression.
- (iv) It shall correlate, review and validate draft standards prepared by the Technical Committees established to produce professional standards for each level of fire service responsibility.
- (v) It shall approve all draft standards before such are submitted for final adoption procedures.
- (vi) It shall be responsible for the accreditation and supervision of any national programs of certification and shall coordinate with implementing agencies to ensure validity and reliability of the evaluation criteria used in connection with such programs.

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## STATEMENT BY THE BOARD AS TO THE APPLICABILITY OF STANDARDS DEVELOPED UNDER THE SYSTEM

### Application to Existing Positions

It is not the intent of the Board that these standards shall have the effect of rendering invalid any rank, qualification and appointment acquired prior to the adoption of this standard.

Upon adoption of any standard, the authority having jurisdiction shall classify its existing ranks, qualifications, and appointments to determine equivalency with an appropriate level of the standard.

An incumbent of a position established prior to adoption of a standard shall be considered qualified and eligible for future progression in accordance with the standards.

### Existing Systems

Those existing systems of qualifications which meet or exceed these minimum standards should continue in force.

It is the intent, however, that existing systems of qualifications that fail to meet these standards be discontinued after adoption of the standard, so that all persons acquiring qualification thereafter do so in accordance with this standard.

The Board recognizes that, at present, wide variations exist in the standards of competence required of members of the fire service; and, that due to geographic considerations and the differing requirements of the many organizations providing fire protection, higher levels of competence than those provided in the standards produced under the National System may be desirable in certain areas.

The Board considers it essential that all members of the fire service eventually achieve the minimum standards.

### Performance Objectives

The Board directed all committees to develop standards in terms of terminal performance objectives, which are considered the *minimum* necessary for a person to be considered competent to engage in providing fire service at the respective level and in the role specified by the standard, no matter where that person is serving.

In this connection, it is pointed out that the statement of performance objectives contained in the standards is not a training program outline. A number of instructional steps are required for mastery of an objective. Teaching outlines will be more detailed and extensive, as a single objective can require many hours of instruction and may interrelate to instruction for other objectives.

### The Standards

The standards are designed so that any member of the fire service can achieve the level required by various means; these include participation in state and local training programs, self-study, attendance at colleges offering suitable courses, and by combinations of these means.

The standards are the first step; there must also be a controlled testing procedure by which personnel can be officially certified when they have demonstrated their competency. The Board stresses that such testing procedures are essential to a meaningful program of professionalism and, accordingly, is prepared, in conformance with the directions of the Joint Council of National Fire Service Organizations, to review the validity and quality of testing procedures established by state and local authorities, and to accredit such procedures.

The Board strongly recommends that certification procedures be established on a statewide basis in every state where no such system exists at present, and that every fire department participate in the program.

The establishment of standards and testing procedures will not, in themselves, ensure that all personnel will achieve the required levels of competency. It follows that training programs should be developed to prepare members of the fire service to acquire the skills and knowledge necessary to achieve the terminal performance objectives of the standards.

Throughout the standards, levels of numerical ascending sequence have been used to denote increasing degrees of responsibility: e.g., Fire Investigator I, II, III, the lowest or basic level being I. A similar sequence will be used in each standard; the total number of levels varying in accordance with the number of steps involved in the individual standard.

### Approval of Standard

This version of NFPA 1033, *Standard for Professional Qualifications for Fire Investigator*, was approved by the National Professional Qualifications Board for the Fire Service in February, 1987, with the recommendation that it be submitted for adoption at the NFPA Annual Meeting to be held in Cincinnati, Ohio in May, 1987.

*(The foregoing is not part of the standard.)*



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## **NFPA 1033**

### **Standard for**

## **Professional Qualifications for Fire Investigator**

### **1987 Edition**

This edition of NFPA 1033, *Standard for Professional Qualifications for Fire Investigator*, was prepared by the Technical Committee on Fire Inspector and Investigator Professional Qualifications, and acted on by the National Fire Protection Association, Inc. at its Annual Meeting held May 18-21, 1987 in Cincinnati, Ohio. It was issued by the Standards Council on June 10, 1987, with an effective date of June 30, 1987, and supersedes all previous editions.

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

### **Origin and Development of NFPA 1033**

The NFPA Committee on Fire Inspector and Investigator Professional Qualifications was asked by the Joint Council of Fire Service Organizations and the National Professional Qualifications Board to determine if the current NFPA 1031, which covers professional qualifications for Fire Inspector, Fire Investigator, and Public Fire Education Officer, could be modified to allow entry into these professional classifications by individuals who may not have been certified as a Fire Fighter III. After careful evaluation, the Committee decided that the development of separate standards with the possibility of certification by individuals outside the traditional fire service system was justified. The new Standard 1033, *Professional Qualifications for Fire Investigator*, represents an effort to provide organizations both within and outside the traditional fire service a system to ensure the competency of fire investigators.

**Technical Committee on  
Fire Inspector and Investigator  
Professional Qualifications**

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Nashville, TN  
Rep. Fire Marshals Assn. of North America

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At Large Rep.  
**Charles H. Donaldson**, Int'l. Fire Service Training Assn.  
Rep. JCFSO/At Large  
**Douglas P. Forsman**, Champaign Fire Dept., IL  
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**Kay F. Marano**, Int'l. Society of Fire Service Instructors  
**Robert E. May**, Int'l. Assn. of Arson Investigators  
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**Jimmie Leon Badgett**, Dallas County Texas  
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(Alternate to D. Turlington)  
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**William Peterson**, Plano Fire Dept, TX  
(Alternate to D. Forsman)  
**William R. Rucinski**, Fire Marshal Div., Dept. of State Police  
(Alternate to H. Boyd)  
**Myrle K. Wise**, Denver Fire Dept., CO  
(Alternate to IAFC Rep.)

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

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

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## NFPA 1033

## Standard for

## Professional Qualifications

## for Fire Investigator

## 1987 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 6 and Appendix B.

## Chapter 1 Administration

**1-1\* Scope.** This standard identifies the professional levels of competence required for fire investigators. Specifically, it addresses the required areas of expertise and defines each level of competence.

**1-2\* Purpose.** The purpose of this standard is to specify in terms of performance objectives the minimum standards of professional competence required for service as a fire investigator. It is not the intent of this standard to restrict any jurisdiction from exceeding these minimum requirements. This standard shall cover the requirements for three levels of fire investigator (Fire Investigator I, II, and III).

**1-3 General.**

**1-3.1\*** The Fire Investigator I shall be at least 18 years of age.

**1-3.2\*** The Fire Investigator I shall have a high school diploma or a state recognized equivalent.

**1-3.3\*** There shall be a thorough investigation and evaluation of the candidate's character before the candidate is accepted.

**1-3.4\*** The standards for each level of professional competence shall be completed in accordance with recognized practices and procedures or as they may be defined by law or by the authority having jurisdiction.

**1-3.5** The objectives are not required to be mastered in the order in which they appear. The local or state training authority shall establish the instructional priorities and the training program content to prepare individuals to meet the performance objectives of this standard.

**1-3.6 Fire Investigator.**

**1-3.6.1** The candidate for Fire Investigator I shall meet all the objectives for Fire Investigator I before being certified as a Fire Investigator I.

**1-3.6.2** The Fire Investigator I shall meet all the objectives for Fire Investigator II before being certified as a Fire Investigator II.

**1-3.6.3** The Fire Investigator II shall meet all the objectives for Fire Investigator III before being certified as a Fire Investigator III.

**1-3.7** The performance standards for each fire investigator level shall be met in their entirety before certification at that level.

**1-3.8** Candidates and applicants for higher fire investigator levels shall be capable of physically performing all of the tasks that may be required of them as determined by the authority having jurisdiction.

**1-3.9** The satisfactory completion of higher education courses, including obtaining a degree in higher education, is not required for certification under the objectives set forth in this standard; however, higher education achieved in related fields will enhance the candidate's ability to grasp concepts and apply the knowledge acquired at each level of certification.

## 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."

**BLEVE.** Boiling Liquid Expanding Vapor Explosion.

**Code Requirement(s).** The statement in a law, ordinance, or legally adopted reference that mandates or guides a particular action or procedure, or restricts a particular action or procedure.

**Define.** To supply a description, orally or in writing, that gives the precise meaning of essential qualities.

**Demonstrate.** To show by actual use, illustration, simulation, or explanation.

**Fire Department.** The agency that provides fire suppression and other fire-related services.

**Fire Hazard.** Any situation, process, material, or condition that, on the basis of applicable data, may cause a fire or explosion, or provide a ready fuel supply to augment the spread or intensity of the fire or explosion, and that poses a threat to life or property.

**Fire Investigator I.** The individual who has demonstrated the knowledge and ability to perform the objectives specified in this standard for the Fire Investigator I level.

**Fire Investigator II.** The Fire Investigator I who has demonstrated the knowledge and ability to perform the objectives specified in this standard for the Fire Investigator II level.

**Fire Investigator III.** A Fire Investigator II who is qualified to perform as the technical and administrative supervisor of a group of fire investigators and has demonstrated the knowledge and ability to perform the objectives specified in this standard for the Fire Investigator III level.

**Fire Prevention Bureau.** A section or agency of a fire department or other jurisdiction that is responsible for fire prevention duties including, but not limited to, code enforcement, conducting fire inspections, public education or public information work, fire investigation, maintaining fire records, and any other activity that may have as its ultimate purpose the prevention of fire and the reduction of life and property losses from fire. These sections or agencies may also be known as the Fire Prevention Division, Fire Marshal's Office, or other such terms.

**Fire Prevention Division.** (See definition of *Fire Prevention Bureau*.)

**Identify.** To physically select, indicate, or explain verbally or in writing, using acceptable and recognizable terms.

**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.

**Objective.** A goal that is achieved through the attainment of a skill, knowledge, or both, that can be observed or measured.

**Qualified.** Having satisfactorily completed the requirements of the objectives.

**Regulation.** The statute, law, or ordinance of authorized rules by which something or someone is governed.

**Shall.** Indicates a mandatory requirement.

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

## Chapter 3 Fire Investigator I

### 3-1\* General.

**3-1.1\*** The Fire Investigator I shall meet the minimum state training standards for law-enforcement officers when required by the authority having jurisdiction.

**3-1.2** The Fire Investigator I shall explain the legally established responsibilities and empowerment related to the performance of the investigator's duties.

**3-1.3\*** The Fire Investigator I shall describe the organization of the fire department or other entity for which duties will be performed.

**3-1.4\*** The Fire Investigator I shall demonstrate oral communications skills.

**3-1.5\*** The Fire Investigator I shall demonstrate written communications skills.

### 3-2 Forcible Entry.

**3-2.1** The Fire Investigator I shall describe fire service procedures for forcible entry.

**3-2.2** The Fire Investigator I shall explain the possible effects of forcible entry on the fire investigation.

### 3-3 Salvage.

**3-3.1** The Fire Investigator I shall describe fire service procedures for salvage.

**3-3.2** The Fire Investigator I shall explain the possible effects of salvage operations on the fire investigation.

### **3-4 Fire Streams.**

**3-4.1** The Fire Investigator I shall identify three types of fire streams and their effects on fire growth and development.

**3-4.2** The Fire Investigator I shall define the following methods of water application:

- (a) direct
- (b) indirect
- (c) combination.

**3-4.3** The Fire Investigator I shall explain the possible effects that different types of water application may have on the fire investigation.

### **3-5 Ventilation.**

**3-5.1** The Fire Investigator I shall describe the principles and effects of ventilation.

**3-5.2** The Fire Investigator I shall explain the effects that ventilation operations may have on the fire investigation.

**3-5.3** The Fire Investigator I shall define the term *back draft*.

### **3-6 Rescue.**

**3-6.1** The Fire Investigator I shall describe procedures for searching for victims in burning, smoke-filled buildings, or other hostile environments, and the effects this could have on the fire investigation.

### **3-7 Fire Alarm and Communications.**

**3-7.1** The Fire Investigator I shall define the procedure for dispatching and recording fire alarms.

### **3-8 Safety.**

**3-8.1** The Fire Investigator I shall describe personal safety practices and procedures utilized in the performance of the investigator's duties.

**3-8.2** The Fire Investigator I shall identify dangerous building conditions created by fire.

**3-8.3** The Fire Investigator I shall explain the precautions to be observed and followed in hazardous material areas.

### **3-9 Fire Behavior.**

**3-9.1** The Fire Investigator I shall define the term *fire*.

**3-9.2** The Fire Investigator I shall define the term *fire tetrahedron*.

**3-9.3** The Fire Investigator I shall identify four sources of heat energy.

**3-9.4\*** The Fire Investigator I shall identify the following potential stages of fire:

- (a) preburning
- (b) initial burning
- (c) vigorous burning
- (d) interactive burning
- (e) remote burning.

**3-9.5** The Fire Investigator I shall define *flameover* and *flashover*.

**3-9.6** The Fire Investigator I shall define three methods of heat transfer.

**3-9.7** The Fire Investigator I shall define the three physical stages of matter in which fuels are commonly found.

**3-9.8** The Fire Investigator I shall define the hazard of finely divided fuels as they relate to the combustion process.

**3-9.9** The Fire Investigator I shall define *flash point* and *ignition temperature*.

**3-9.10** The Fire Investigator I shall explain the effect of oxygen concentration in air on the combustion process.

**3-9.11** The Fire Investigator I shall identify three products of combustion that create a life hazard and are commonly found in structural fires.

**3-9.12** The Fire Investigator I shall define the following units of heat measurement:

- (a) British Thermal Unit (Btu)
- (b) Fahrenheit (°F)
- (c) Celsius (°C)
- (d) Calorie (C).

**3-9.13** The Fire Investigator I shall define *thermal balance*.

### **3-10 Protective Breathing Apparatus.**

**3-10.1** The Fire Investigator I shall identify hazardous respiratory environments likely to be encountered during fire-scene examinations.

**3-10.2** The Fire Investigator I shall demonstrate the use of and identify limitations and safety features of protective breathing apparatus.

### **3-11 Overhaul.**

**3-11.1** The Fire Investigator I shall identify the purpose and procedure of overhaul.

**3-11.2** The Fire Investigator I shall demonstrate recognition and preservation of evidence of arson during overhaul operations.

**3-12 Inspection.**

**3-12.1** The Fire Investigator I shall prepare diagrams or sketches of buildings to record the locations of items of concern in relation to a fire investigation.

**3-12.2** The Fire Investigator I shall demonstrate the ability to collect and record in writing information required for preparing an investigation report.

**3-12.3** The Fire Investigator I shall demonstrate the ability to interpret a fire prevention inspection report.

**3-12.4** The Fire Investigator I shall identify the use and operation of various roof vents, both manual and automatic.

**3-12.5** The Fire Investigator I shall identify four model fire codes.

**3-12.6** The Fire Investigator I shall identify the areas of responsibility of other municipal and state inspection agencies.

**3-12.7** The Fire Investigator I shall identify the fire hazards commonly found in the various occupancies as classified in NFPA 101®, *Code for Safety to Life from Fire in Buildings and Structures*.

**3-12.8** The Fire Investigator I shall identify common deficiencies in electrical services and electrical equipment.

**3-12.9** The Fire Investigator I shall identify standard types of chimneys and flues, and recognize deficiencies likely to cause fires.

**3-12.10** The Fire Investigator I shall identify and define fire spread through air-conditioning and utility ducts, and the functions of automatic and manual controls of these systems.

**3-12.11** The Fire Investigator I shall demonstrate the ability to interpret a basic fire incident report.

**3-12.12\*** The Fire Investigator I shall demonstrate a knowledge of building construction classification by identifying the principal types of building construction, as defined by the authority having jurisdiction.

**3-12.13** The Fire Investigator I shall identify the general fire behavior, including the spread of fire, expected with each type of building construction.

**3-12.14** The Fire Investigator I shall identify responsibilities of the fire fighter in determining the point of origin, cause of fire, and protection of evidence in fires.

**3-12.15** The Fire Investigator I shall identify fire department procedures for shutting off gas and electric service to a building.

**3-12.16** The Fire Investigator I shall identify the common causes of fire and their prevention.

**3-12.17** The Fire Investigator I shall demonstrate the

use of reference materials that identify code requirements and regulations for occupancies defined in NFPA 101, *Life Safety Code*®.

**3-13\* Flammable and Combustible Liquids.****3-13.1 Properties of Flammable and Combustible Liquids.**

**3-13.1.1** The Fire Investigator I shall identify and explain the general properties of flammable and combustible liquids.

**3-13.1.2** The Fire Investigator I shall define the effects of temperature and pressure on flammable and combustible liquids.

**3-13.1.3** The Fire Investigator I shall define *flammable and explosive limits*.

**3-13.1.4** The Fire Investigator I shall define *specific gravity*.

**3-13.1.5** The Fire Investigator I shall define *boiling point*.

**3-13.1.6** The Fire Investigator I shall identify the basic classes of flammable and combustible liquids as defined by NFPA 30, *Flammable and Combustible Liquids Code*.

**3-13.1.7** The Fire Investigator I shall define *toxicity* as it relates to the fire environment.

**3-13.1.8** The Fire Investigator I shall define *reactivity*.

**3-13.2 Storage, Handling, and Use of Flammable and Combustible Liquids.**

**3-13.2.1** The Fire Investigator I shall identify the fire hazards associated with the storage, handling, and use of flammable and combustible liquids.

**3-13.2.2** The Fire Investigator I shall explain the regulations and hazards attendant to the transfer of flammable and combustible liquids.

**3-13.2.3** The Fire Investigator I shall explain the regulations and fire hazards attendant to finishing processes that involve flammable and combustible liquids.

**3-13.2.4** The Fire Investigator I shall explain what may constitute possible sources of ignition during storage, handling, and use of flammable and combustible liquids.

**3-13.2.5** The Fire Investigator I shall describe conditions that might be conducive to creating explosive atmospheres in the storage, handling, and use of flammable and combustible liquids.

**3-13.2.6** The Fire Investigator I shall describe conditions associated with the typical storage, handling, and use of flammable and combustible liquids that might be conducive or lead to a BLEVE situation.

**3-13.2.7** The Fire Investigator I shall explain the regulations or code provisions related to the storage, handling, or use of flammable or combustible liquids.

**3-13.3 Underground Storage Tanks for Flammable and Combustible Liquids.**

3-13.3.1 The Fire Investigator I shall describe approved installation practices relative to underground storage tanks for flammable and combustible liquids.

3-13.3.2 The Fire Investigator I shall define approved normal venting procedures and devices installed on underground storage tanks for flammable and combustible liquids.

**3-13.4 Aboveground Storage Tanks for Flammable and Combustible Liquids.**

3-13.4.1 The Fire Investigator I shall define acceptable installation practices of aboveground storage tanks for flammable and combustible liquids.

3-13.4.2 The Fire Investigator I shall define the procedures to determine whether approved venting devices are being properly maintained.

**3-13.5 Inside Storage Tanks for Flammable and Combustible Liquids.**

3-13.5.1 The Fire Investigator I shall define acceptable installation practices relative to the inside storage of flammable and combustible liquids.

3-13.5.2 The Fire Investigator I shall define procedures to determine whether normal and emergency venting devices are being properly maintained.

**3-13.6 Outside Container Storage for Flammable and Combustible Liquids.**

3-13.6.1 The Fire Investigator I shall define approved methods for the outside storage of flammable and combustible liquids.

3-13.6.2 The Fire Investigator I shall identify container venting devices and explain venting practices.

**3-13.7 Inside Container Storage for Flammable and Combustible Liquids.**

3-13.7.1 The Fire Investigator I shall define approved practices that may exist for different occupancies relative to the inside storage of flammable and combustible liquids.

3-13.7.2 The Fire Investigator I shall define approved venting devices or procedures acceptable for the inside storage of flammable and combustible liquids.

**3-13.8 Flammable and Combustible Liquids Labeling.**

3-13.8.1 The Fire Investigator I shall define labeling and placarding systems used for flammable and combustible liquids identification.

**3-13.9 Transportation of Flammable and Combustible Liquids.**

3-13.9.1 The Fire Investigator I shall list which agencies regulate the transportation of flammable and combustible liquids in the jurisdiction.

3-13.9.2 The Fire Investigator I shall list which agencies offer assistance in handling flammable and combustible liquids emergencies in the jurisdiction.

**3-14\* Compressed and Liquefied Gases.****3-14.1 Properties of Compressed and Liquefied Gases.**

3-14.1.1 The Fire Investigator I shall define the general properties of compressed and liquefied gases.

3-14.1.2 The Fire Investigator I shall define the effects of temperature and pressure as they relate to compressed and liquefied gases.

3-14.1.3 The Fire Investigator shall define specific gravity, particularly as it relates to compressed and liquefied gases.

3-14.1.4 The Fire Investigator I shall define the difference between compressed and liquefied gases.

**3-14.2 Storage, Handling, and Use of Compressed and Liquefied Gases.**

3-14.2.1 The Fire Investigator I shall define the fire hazards associated with the typical storage, handling, and use of compressed and liquefied gases.

3-14.2.2 The Fire Investigator I shall identify the possible ignition sources and fire causes involving compressed and liquefied gases.

3-14.2.3 The Fire Investigator I shall identify the conditions that might be conducive to fire ignition and propagation involving compressed and liquefied gases.

**3-14.3 Compressed and Liquefied Gases Containers.**

3-14.3.1 The Fire Investigator I shall define acceptable practices for compressed and liquefied gas storage and container installation.

**3-14.4 Compressed and Liquefied Gases Transfer Operations.**

3-14.4.1 The Fire Investigator I shall define approved practices and procedures involved in the transfer of compressed and liquefied gases.

3-14.5 Compressed and Liquefied Gas Leaks. The Fire Investigator I shall define approved means of compressed and liquefied gases leakage control.

**3-14.6 Transportation of Compressed and Liquefied Gases.**

3-14.6.1 The Fire Investigator I shall identify the agencies that regulate the transportation of compressed and liquefied gases within the jurisdiction.

3-14.6.2 The Fire Investigator I shall identify the agencies that offer assistance in handling compressed and liquefied gases emergencies within the jurisdiction.

**3-14.7 Labeling of Compressed and Liquefied Gases.**

3-14.7.1 The Fire Investigator I shall identify approved regulatory labeling and placarding regulations for compressed and liquefied gases.



**3-15\* Explosives, Including Fireworks.**

**3-15.1** The Fire Investigator I shall identify the classifications of explosives. (*See NFPA 495, Code for the Manufacture, Transportation, Storage, and Use of Explosive Materials.*)

**3-15.2** The Fire Investigator I shall identify the common hazards associated with the typical storage, handling, transportation, and use of explosives including fireworks.

**3-15.3 Labeling of Explosives, Including Fireworks.**

**3-15.3.1** The Fire Investigator I shall identify approved regulatory labeling and placarding systems relative to explosives including fireworks.

**3-15.4** The Fire Investigator I shall identify approved sources from which detailed or technical information on explosives, including fireworks, might be obtained.

**3-15.5 Storage of Explosives, Including Fireworks.**

**3-15.5.1** The Fire Investigator I shall identify code requirements and regulations for the storage of explosives, including fireworks.

**3-15.5.2** The Fire Investigator I shall identify storage facilities required for the various classes of explosives.

**3-16\* Other Hazardous Materials.** (*See NFPA 49, Hazardous Chemicals Data, and NFPA 491M, Manual of Hazardous Chemical Reactions.*)

**3-16.1\*** The Fire Investigator I shall identify approved regulatory labeling and placarding systems for hazardous materials.

**3-16.1.1** The Fire Investigator I shall identify sources of detailed and technical information about various hazardous materials.

**3-16.2 Specific Hazardous Materials.**

**3-16.2.1\*** The Fire Investigator I shall identify properties of corrosives and shall name the more common corrosives.

**3-16.2.2\*** The Fire Investigator I shall identify properties of reactive materials and shall name the more common reactive materials.

**3-16.2.3\*** The Fire Investigator I shall identify properties of unstable materials and shall name the more common unstable materials.

**3-16.2.4\*** The Fire Investigator I shall identify properties of toxic materials and shall be able to name the more common toxic materials.

**3-16.2.5\*** The Fire Investigator I shall identify properties of oxidizing materials and shall be able to name the more common oxidizing materials.

**3-16.2.6** The Fire Investigator I shall identify the general fire hazard properties of the various types of plastics.

**3-16.2.7** The Fire Investigator I shall identify approved methods for the typical storage, handling, and use of natural and synthetic fibers.

**3-16.2.8\*** The Fire Investigator I shall identify combustible metal characteristics and shall be able to name the more common combustible metals.

**3-16.2.9** The Fire Investigator I shall identify code requirements and regulations relative to the typical storage, handling, and use of combustible metals.

**3-16.3 Combustible Dusts.**

**3-16.3.1\*** The Fire Investigator I shall identify combustible dust characteristics and shall be able to name the more common combustible dusts.

**3-16.3.2** The Fire Investigator I shall identify the basic fire and explosion characteristics of various combustible dusts.

**3-16.3.3** The Fire Investigator I shall identify code requirements and regulations relative to the typical storage and handling of combustible dusts.

**3-17 Fire Protection Equipment.****3-17.1 Portable Fire Extinguishers.**

**3-17.1.1** The Fire Investigator I shall identify the types of portable fire extinguishers. (*See NFPA 10, Standard for Portable Fire Extinguishers.*)

**3-17.1.2** The Fire Investigator I shall identify the capabilities of extinguishing agents and the proper method for agent application.

**3-17.2 Fixed Fire Extinguishing Systems.**

**3-17.2.1\*** The Fire Investigator I shall define the types of fixed fire extinguishing systems.

**3-17.2.2** The Fire Investigator I shall explain the operation of fixed fire extinguishing systems.

**3-17.2.3** The Fire Investigator I shall explain the capabilities of the extinguishing agent and the proper procedures for agent application in a fixed fire extinguishing system.

**3-17.2.4** The Fire Investigator I shall explain the effects of fixed fire extinguishing systems on fire behavior.

**3-17.3 Sprinkler Systems.** (*See NFPA 13, Standard for the Installation of Sprinkler Systems.*)

**3-17.3.1** The Fire Investigator I shall have a basic knowledge of the different types of sprinkler systems. (*See NFPA 13, Standard for the Installation of Sprinkler Systems*)

**3-17.3.2** The Fire Investigator I shall define the workings of sprinkler systems and their appurtenances.

**3-17.3.3** The Fire Investigator shall define the capabilities or limitations of sprinkler systems.

**3-17.3.4** The Fire Investigator I shall explain the effects of automatic sprinklers on the fire behavior and how this may affect the fire investigation.

#### **3-17.4 Standpipe and Hose Systems.**

**3-17.4.1** The Fire Investigator I shall identify the types of standpipe and hose systems. (*See NFPA 14, Standard for the Installation of Standpipe and Hose Systems.*)

**3-17.4.2** The Fire Investigator I shall identify the capabilities of standpipe and hose systems and their appurtenances.

#### **3-17.5 Water Supply Systems.**

**3-17.5.1** The Fire Investigator I shall identify the components of water supply systems.

#### **3-17.5.2 Heat, Smoke, and Flame Detection Systems.**

**3-17.5.3** The Fire Investigator I shall describe the operation of heat, smoke, and flame detection systems and devices. (*See NFPA 72E and 74.*)

**3-17.5.4** The Fire Investigator I shall explain the proper installation locations of heat, smoke, and flame detection devices.

#### **3-17.6 Fire Alarms Systems and Devices.**

**3-17.6.1** The Fire Investigator I shall identify the types of fire alarm systems and devices. (*See NFPA 72A, 72B, 72C, 72D, and 72E.*)

**3-17.6.2** The Fire Investigator I shall differentiate between residential, local proprietary, central station, and municipal fire alarm systems.

#### **3-18 Heating and Cooking Equipment.**

**3-18.1** The Fire Investigator I shall identify fire hazards related to the various types of heating and cooking equipment.

**3-18.2** The Fire Investigator I shall identify general fire safeguards incorporated in heating and cooking equipment.

**3-18.3** The Fire Investigator I shall identify sources of detailed and technical information about heating and cooking equipment.

#### **3-19 Principles of Electricity.**

**3-19.1** The Fire Investigator I shall identify the principles of elementary electrical theory.

**3-19.2\*** The Fire Investigator I shall explain the installation of and safety devices used in electrical systems.

**3-19.3** The Fire Investigator I shall identify the fire and life safety hazards associated with the typical uses of electricity and electrical systems.

**3-19.4** The Fire Investigator I shall identify sources of detailed and technical information related to electricity and electrical systems.

**3-20 Means of Egress.** The Fire Investigator I shall identify egress requirements for various occupancies as defined by NFPA 101, *Life Safety Code*.

#### **3-21 Interior Finishes.**

**3-21.1** The Fire Investigator I shall identify flame spread, smoke generation, and fuel contribution ratings, and how they are determined.

**3-21.2** The Fire Investigator I shall identify markings, labeling, or certifications for interior finishes.

#### **3-21.3 Decorations, Decorative Materials, and Furnishings.**

**3-21.3.1** The Fire Investigator I shall describe burning characteristics for decorations, decorative materials, and furnishings.

#### **3-22 Code Enforcement Procedures.**

**3-22.1** The Fire Investigator I shall define the code enforcement responsibilities of building and fire officials.

#### **3-22.2 Report Preparation.**

**3-22.2.1** The Fire Investigator I shall demonstrate preparing a fire investigation report.

**3-22.2.2** The Fire Investigator I shall identify the laws and procedures related to search and seizure.

**3-22.2.3** The Fire Investigator I shall identify operation of basic photography equipment.

**3-22.2.4** The Fire Investigator I shall identify security measures and identification procedures related to photographs.

**3-22.2.5** The Fire Investigator I shall identify interview techniques.

**3-22.2.6** The Fire Investigator I shall identify the value of maintaining accurate notes.

#### **3-23 Fire Investigation.**

**3-23.1** The Fire Investigator I, given diagrams and/or sketches of a fire scene, shall demonstrate the ability to:

- (a) determine the point of origin
- (b) determine loss to the structure and contents.

**3-23.2** The Fire Investigator I shall identify how fire fighters would be directed to identify and protect evidence.

**3-23.3** The Fire Investigator I shall identify how fire fighters would properly collect, remove, and preserve evidence.

**3-23.4** The Fire Investigator I shall identify the procedures for preliminary interviewing of witnesses and identification of suspects at the fire scene.

**3-23.5\*** The Fire Investigator I shall define the *hearsay rule* and its exceptions.

**3-23.6** The Fire Investigator I shall identify the factors to be considered by fire fighters, upon their arrival at a fire, that may indicate an incendiary fire.

**3-23.7** The Fire Investigator I shall describe the procedures used in identifying incendiary fires.

**3-23.8** The Fire Investigator I shall identify the methods of securing and controlling the fire scene.

**3-23.9** The Fire Investigator I shall identify how the methods used by fire setters can be detected.

**3-23.10** The Fire Investigator I shall identify the motives for fire-setting behavior.

**3-23.11** The Fire Investigator I shall identify which local, regional, and/or state agencies may assist in fire investigations.

**3-23.12** The Fire Investigator I, given a summary of the record system maintained on fire investigations, shall identify how the record system is used and maintained.

**3-23.13** The Fire Investigator I shall identify char and burn pattern characteristics of common materials.

**3-23.14** The Fire Investigator I shall identify how to determine the perpetrator's method of entry.

**3-23.15** The Fire Investigator I shall identify the importance of and the procedures for eliminating accidental fire causes when giving testimony in fire investigation cases.

**3-23.16** The Fire Investigator I shall identify how to operate detection equipment associated with fire investigations.

## **Chapter 4 Fire Investigator II**

### **4-1 General.**

**4-1.1** The Fire Investigator II shall describe basic criminal investigative procedures.

**4-1.2** The Fire Investigator II shall identify techniques used in interrogation.

**4-1.3** The Fire Investigator II shall identify procedures and techniques for questioning suspects.

**4-1.4** The Fire Investigator II shall demonstrate sketching and diagraming methods.

**4-1.5** The Fire Investigator II shall identify human motivation and behavior patterns related to false alarms and fire setting.

**4-1.6** The Fire Investigator II shall identify juvenile fire-setting behaviors.

**4-1.7** The Fire Investigator II shall identify interview techniques for juvenile fire setters.

**4-1.8** The Fire Investigator II shall demonstrate an ability to read and interpret construction plans.

**4-1.9** The Fire Investigator II shall explain construction methods and materials and their effect on fire and fire spread.

**4-1.10** The Fire Investigator II shall explain the fire characteristics of household products and furnishings.

**4-1.11** The Fire Investigator II shall identify explosives and explosion characteristics.

**4-1.12** The Fire Investigator II shall identify fire reports and the reporting procedures used in the investigation of fires.

**4-1.13** The Fire Investigator II shall identify surveillance techniques.

**4-1.14\*** The Fire Investigator II, given specific problems and all pertinent information, shall demonstrate the use of the following: whole numbers, fractions and decimals, percentages, averages and estimations, algebraic equations, powers and roots, ratios and proportions, linear surface, and volume measurements.

### **4-2 Legal.**

**4-2.1\*** The Fire Investigator II shall identify the judicial system relative to the performance of the investigator's duties.

**4-2.2** The Fire Investigator II shall identify the requirements for the security and admissibility of evidence in a court of law.

**4-2.3** The Fire Investigator II shall identify what constitutes criminal intent on the part of the perpetrator.

**4-2.4** The Fire Investigator II shall identify the procedures for obtaining and serving warrants.

**4-2.5** The Fire Investigator II shall identify the legal terms associated with the performance of the investigator's duties.

**4-2.6** The Fire Investigator II shall identify case preparation procedures for legal prosecution.

**4-2.7** The Fire Investigator II shall identify the legal parameters relative to statements, including confessions.

**4-2.8** The Fire Investigator II shall identify the legal requirements relative to surveillance.

**4-2.9** The Fire Investigator II shall identify the individual's rights and the requirements relative thereto.

**4-2.10** The Fire Investigator II shall identify the legal parameters involving the questioning of witnesses.

**4-2.11** The Fire Investigator II shall identify arrest procedures.

**4-2.12** The Fire Investigator II shall identify how to take a statement.

**4-2.13** The Fire Investigator II shall identify the procedures for filing arson cases in either state or federal courts, or both.

#### **4-3 Evidence Collection.**

**4-3.1** The Fire Investigator II shall identify the operating of detection equipment associated with fire investigations.

**4-3.2** The Fire Investigator II shall identify laboratory requirements for processing evidence.

**4-3.3** The Fire Investigator II shall identify the procedures for marking and tagging evidence.

#### **4-4 Photography.**

**4-4.1** The Fire Investigator II shall identify how photographs may be used in court.

**4-4.2** The Fire Investigator II shall identify the admissibility of photographic evidence in a court of law.

#### **4-5 Fire Scene Examination.**

**4-5.1** The Fire Investigator II shall identify the factors affecting fire spread.

**4-5.2** The Fire Investigator II shall identify the burning rate and heat-release characteristics for combustible materials.

**4-5.3** The Fire Investigator II shall identify how to establish probable cause of fire.

**4-5.4** The Fire Investigator II shall identify how to determine what may be considered unusual at a fire scene.

**4-5.5** The Fire Investigator II shall identify how to reconstruct the fire scene.

#### **4-6 Records, Reports, and Documents.**

**4-6.1** The Fire Investigator II shall identify how to complete and file reports relative to fire investigation.

**4-6.2** The Fire Investigator II shall identify the types of fire insurance policies and how they affect a fire investigation.

**4-6.3** The Fire Investigator II shall identify inventory and record-keeping systems.

**4-6.4\*** The Fire Investigator II shall identify the purpose of various property documents.

**4-6.5** The Fire Investigator II shall identify where various records, reports, and/or documents pertaining to suspects and premises involved in fire may be found or are likely to be filed.

**4-6.6** The Fire Investigator II shall identify the legal requirements for reviewing or obtaining records, reports, or documents.

**4-6.7** The Fire Investigator II shall identify various criminal reporting procedures and systems and how they can be used.

**4-6.8\*** The Fire Investigator II shall identify other records that may be used in an investigation.

**4-6.9** The Fire Investigator II shall identify how to release information to the public.

#### **4-7 Other Agencies.**

**4-7.1** The Fire Investigator II shall identify which agencies may provide assistance in fire investigation activities.

**4-7.2** The Fire Investigator II shall identify how to request assistance from other agencies.

#### **4-8 Courtroom.**

**4-8.1** The Fire Investigator II shall identify general courtroom procedures.

**4-8.2** The Fire Investigator II shall identify the various trial procedures and judicial parameters.

**4-8.3** The Fire Investigator II shall identify appropriate courtroom demeanor.

#### **4-9 Community.**

**4-9.1** The Fire Investigator II, given a topic, shall prepare a written speech, develop appropriate visual aids, and deliver a presentation on the topic.

**4-9.2** The Fire Investigator II shall identify how to prepare arson-prevention and public-information displays and visual aids for special events and programs.

**4-9.3** The Fire Investigator II shall identify how to prepare and submit a news release.

**4-9.4** The Fire Investigator II, given a summary of various types of complaints, shall identify the proper steps used in handling the complaints.

## **Chapter 5 Fire Investigator III**

#### **5-1 Administration.**

**5-1.1** The Fire Investigator III shall identify the systems of government with which the investigator must interact.

**5-1.2** The Fire Investigator III shall identify the processes for developing arson-suppression legislation.

**5-1.3** The Fire Investigator III shall identify which sources can provide information and technical assistance in the development of arson-suppression legislation.

#### **5-2 Management Functions.**

**5-2.1** The Fire Investigator III shall identify types of personnel management systems and procedures.

**5-2.2** The Fire Investigator III shall identify the importance of maintaining proper records.

5-2.3 The Fire Investigator III shall identify the types and requirements of data collection systems that affect the performance of the investigator's duties.

5-2.4 The Fire Investigator III shall identify how to use statistical information in fire investigation programs.

5-2.5 The Fire Investigator III shall identify techniques for evaluating personnel skills relative to fire investigation.

5-2.6 The Fire Investigator III shall identify the process of budgeting.

5-2.7 The Fire Investigator III shall identify commonly utilized budgeting formats and list the advantages and disadvantages of each style.

5-2.8 The Fire Investigator III shall identify how to complete a program-type budget instrument.

5-2.9 The Fire Investigator III shall verbally present a program-type budget instrument.

5-2.10 The Fire Investigator III shall identify how to plan and design a total program budget instrument for fire investigation activities.

5-2.11 The Fire Investigator III shall identify the phases of the budget preparation and acceptance process.

5-2.12 The Fire Investigator III shall identify the cost-benefit analysis calculation, its application, and its interpretation.

5-2.13 The Fire Investigator III shall demonstrate the preparation of a cost-benefit analysis given sample data.

5-2.14 The Fire Investigator III shall explain the importance of coordinating investigative activities with other agencies.

5-2.15 The Fire Investigator III shall identify the job requirements of subordinate positions and demonstrate the ability to plan, assign, coordinate activities, and establish priorities.

5-2.16 The Fire Investigator III, given a summary of the job requirements for all positions within a department, shall establish a list of education and in-service training goals for each position.

5-2.17 The Fire Investigator III shall identify how to prepare equipment specifications.

5-2.18 The Fire Investigator III shall explain the training requirements necessary to maintain qualified personnel.

### 5-3 Safety Practices.

5-3.1 The Fire Investigator III, given safety records and reports and a summary of federal, state, and local codes and ordinances regulating safety practices, shall demonstrate knowledge of how to develop, plan, initiate, administer, and evaluate safety programs.

5-3.2 The Fire Investigator III shall explain the cost of injuries and insurance programs to provide protection for injured employees.

### 5-4 Political Science.

5-4.1 The Fire Investigator III shall identify federal, state, and local legislation affecting fire and arson investigation.

5-4.2 The Fire Investigator III shall identify the law-making and rule-making process of the federal government.

5-4.3 The Fire Investigator III shall identify the law-making and rule-making process in the state government of the authority having jurisdiction.

5-4.4 The Fire Investigator III shall identify the law-making and rule-making process of the authority having jurisdiction.

## Chapter 6 Referenced Publications

6-1 The following documents or portions thereof are referenced within this document and shall be considered part of the requirements of this document. The edition indicated for each reference shall be the current edition as of the date of the NFPA issuance of this document. These references shall be listed separately to facilitate updating to the latest edition by the user.

**6-1.1 NFPA Publications.** National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

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

NFPA 13-1987, *Standard for the Installation of Sprinkler Systems*

NFPA 14-1986, *Standard for the Installation of Standpipe and Hose Systems*

NFPA 30-1987, *Flammable and Combustible Liquids Code*

NFPA 72A-1987, *Standard for the Installation, Maintenance and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm and Supervisory Service*

NFPA 72B-1986, *Standard for the Installation, Maintenance and Use of Auxiliary Protective Signaling Systems for Fire Alarm Service*

NFPA 72C-1986, *Standard for the Installation, Maintenance and Use of Remote Station Protective Signaling Systems*

NFPA 72D-1986, *Standard for the Installation, Maintenance and Use of Proprietary Protective Signaling Systems*

NFPA 72E-1987, *Standard on Automatic Fire Detectors*

NFPA 101-1985, *Life Safety Code*

## Appendix A

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

**A-1-1** This standard may be used by all organizations desiring to establish levels of professional competence for individuals employed as fire investigators. The requirements set forth by the standard are meant to represent the body of knowledge required for the particular levels described regardless of the method of entry into the fire service or the public or private orientation of an organization.

**A-1-2** Each jurisdiction should determine the number of different job classifications on the basis of local needs, personnel, and budget. Smaller jurisdictions may require that one person fulfill all duties set forth under several job classifications while others may establish full-or part-time specialists in a classification or any combination thereof. For certification, an individual must meet the requirements of each classification up to and including the one for which he/she is being certified, regardless of whether the individual does or does not hold that title or accomplish the tasks.

**A-1-3.1** Two factors indicate the need to establish a minimum age of 18 for new applicants. First, it provides an opportunity to complete minimum educational requirements. Second, the nature of a fire protection career requires a high degree of motivation and maturity to ensure proper efficiency. It is recognized that evaluating motivation and maturity may not be a completely objective process; nevertheless, an applicant's behavior pattern should be sufficiently well established by age 18 to permit a reasonable assessment of interests and emotional stability necessary to carry out the duties of a fire inspector.

**A-1-3.2** From the beginning of a career in fire protection, an individual must be able to acquire and correctly associate significant quantities of information covering a wide variety of subject areas. Initially, training will be concentrated on development of manual skills and knowledge of physical sciences. Continuing education will include humanities and administration, particularly if the individual is to progress up the career ladder of his/her organization.

Although a considerable quantity of the knowledge will be obtained through in-service training, certain required levels of educational achievement can only be obtained through community colleges or programs at other institutions of higher learning. Completion of high school (or an equivalency certificate) is considered a reasonable and identifiable benchmark whereby an applicant demonstrates through past performance the self-discipline and ability to acquire new knowledge necessary to fulfill the immediate and long-range training needs of a fire protection career.

**A-1-3.3** An applicant's background, including personal, work, and criminal history should be evaluated. A fire investigator will be called upon to perform a variety of duties that require a high degree of public trust and confidence. These duties include inspection of property

(public and private) and responsibility for valuable property. These and other duties demand a degree of integrity and honesty that may not be required in other public-service positions.

**A-1-3.4** It is assumed that each jurisdiction using this standard will have the capabilities of checking or testing to ensure that the minimum requirements of this standard have been met.

**A-3-1** An individual certified as a Fire Fighter I, II, or III will have met some of the requirements for Fire Investigator I, depending on his/her level of certification.

**A-3-1.1** Successful completion of basic law-enforcement training is a desired prerequisite for all fire investigators even though it is not required for certification.

**A-3-1.3** The intent of the objective is for fire investigators to know the chain of command within their organization and to know the type of governing body and/or management that controls the organization.

**A-3-1.4 English.** Intent: The Fire Investigator I should have an understanding of written and verbal communications skills. A transcript of first semester college level English course, or the results of a Clep test, or an equivalent method of testing is acceptable.

**A-3-1.5** See A-3-1.4.

**A-3-9.4** The potential stages of fire are taken from the *Fire Protection Handbook*, 16th Edition, p. 7-6.

**A-3-12.12** See NFPA *Fire Protection Handbook*, 16th Edition, for classification of types of building constructions. Also see NFPA 220, *Standard on Types of Building Construction*.

**A-3-13** See NFPA 30, *Flammable and Combustible Liquids Code*.

**A-3-14, A-3-15, A-3-16 Chemistry.** Intent: The Fire Investigator I should understand the principles of chemistry as they relate to fire investigation. A transcript of a college level chemistry course, or the results of a Clep test, or an equivalent method of testing is acceptable.

**A-3-16.1** The labeling and placarding systems should include those used by the Department of Transportation, the National Fire Protection Association Standard NFPA 704, and the United Nations. There may be others that relate to a particular area as well.

**A-3-16.2.1** A list of common corrosives should include the following as a minimum:

- hydrochloric acid
- nitric acid
- sulfuric acid
- bromine
- chlorine
- fluorine
- iodine
- sodium hydroxide (caustic soda)

potassium hydroxide (caustic potash)  
calcium oxide (quick lime)  
calcium hypochlorite  
hydrazine  
hydrogen peroxide.

**A-3-16.2.2** A listing of common reactive materials should include the following as a minimum:

white or yellow phosphorus  
metallic sodium  
sodium hydroxide (caustic soda)  
potassium hydroxide (caustic potash)  
triethyl-aluminum  
acetic anhydride  
sodium carbide  
potassium carbide  
calcium carbide  
sodium hydride  
lithium hydride  
calcium oxide (quick lime).

**A-3-16.2.3** A listing of common unstable materials should include the following as a minimum:

acetaldehyde  
ethylene oxide  
hydrogen cyanide  
ethyl acrylate  
nitromethane  
benzoyl peroxide  
isopropyl ether.

**A-3-16.2.4** A listing of common toxic materials should include the following as a minimum:

strychnine  
atropine  
aniline  
arsenic acid  
benzene  
toluene  
xylene  
cresol  
hydrogen cyanide  
cyanogen chloride  
sodium fluoride.

**A-3-16.2.5** A listing of common oxidizing materials should include the following as a minimum:

sodium nitrate  
potassium nitrate  
ammonium nitrate  
cellulose nitrate  
nitric acid  
ammonium nitrite  
sodium peroxide  
potassium peroxide  
strontium peroxide  
barium peroxide  
hydrogen peroxide  
potassium chlorate  
sodium chlorite  
calcium hypochlorite  
ammonium dichromate  
ammonium perchlorate  
sodium perchlorate

magnesium perchlorate  
perchloric acid  
potassium permanganate  
potassium persulfate.

**A-3-16.2.8** A listing of common combustible metals should include the following as a minimum:

magnesium  
titanium  
sodium  
lithium  
potassium  
zirconium  
calcium  
zinc  
sodium-potassium alloys.

**A-3-16.3.1** A listing of common combustible dusts should include the following as a minimum:

cocoa  
starch  
grain  
flour  
charcoal  
graphite  
coal  
plastic  
rubber  
aluminum  
magnesium.

**A-3-17.2.1** Fixed fire extinguishing systems should include those using dry-chemical, carbon dioxide, foam, foam-water, and halogenated agents as extinguishing agents.

**A-3-19.2** This objective refers to an electrical system on the building side of the electrical supply meter.

**A-3-23.5** There are many exceptions to the hearsay rule; however, those most commonly encountered in criminal trials are 1) dying declarations, 2) spontaneous declarations, 3) former testimony, 4) business records, 5) pedigree, 6) confessions, 7) admissions, and 8) past memory recorded.

**A-4-1.14** Intent: The Fire Investigator II should have an understanding of basic mathematic principles for fire service application. A transcript of a college-level technical math course, or the result of a Clep test, or an equivalent method of testing is acceptable.

**A-4-2.1** The candidate should be able to explain what courts have jurisdiction over a given case and be able to explain how the case would proceed from entry into the judicial system through appeals to the U.S. Supreme Court.

**A-4-6.4** These documents should include: leases, deeds, liens, garnishments, judgments, etc., and their importance in fire investigation.

**A-4-6.8** These records should include, but not be limited to, medical records, school records, telephone records, employment records, and police records.

**Appendix B Referenced Publications**

**B-1** The following documents or portions thereof are referenced within this document for informational purposes only and thus should not be considered part of the requirements of this document. The edition indicated for each reference should be current as of the date of the NFPA issuance of this document. These references should be listed separately to facilitate updating to the latest edition by the user.

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

NFPA 704-1985, *Standard System for the Identifica-*

*tion of the Fire Hazards of Materials*  
*NFPA Fire Protection Handbook, 16th Edition*

**B-2 Bibliography.****B-2.1 NFPA Publications.**

*NFPA Fire Protection Handbook, 16th Edition*  
*Investigation of Fires of Electrical Origin*  
*NFPA Arson Guides*

**B-2.2 Incident Investigations and Reporting Guides.**

*Fire Cause Determination*, Fire Protection Publications, Stillwater, OK



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