

Fire Certification Program

4190 Aumsville Hwy

Salem, Oregon 97317

Phone: 503-378-2100



NFPA 1003

Airport Fire Fighter

NFPA Airport Fire Fighter
Professional Qualifications 2015
Guide to Certification

The following information contains excerpts from NFPA 1003. The DPSST Fire Certification Program has provided an overview for the applicant to use in conjunction with the application process.

NFPA Fire Apparatus Driver/Operator Task Force Information

On June 16, 2016, the National Fire Protection Association (NFPA) 1003 Standard for Airport Fire Fighter Professional Qualifications Task Force convened at the Department of Public Safety Standards and Training (DPSST) at the direction of the Fire Policy Committee (FPC) to discuss and review the 2015 standard. The Task Force was well represented from all areas of the Oregon fire service and the members had adequate time to prepare for the evaluation of the current standard.

The Task Force reviewed current standards for certification and determined it would be in the best interest of the Oregon fire service to adopt into Oregon Administrative Rule (OAR) the 2015 Edition of NFPA 1003. The Task Force determined there wouldn't be any negative impacts to the Oregon fire service with the adoption of the updated standard. The Task Force requested staff to create a guide to discuss and share information pertaining to the updated standard. This guide has been approved by the members of the Task Force.

Oregon Administrative Rule

259-009-0005

(29) "NFPA Airport Firefighter" means a member of a Fire Service Agency who has met job performance requirements of NFPA Standard 1003.

259-009-0062

(c) The provisions of the NFPA Standards 1003, 2015 Edition, entitled "Standard for Airport Fire Fighter Professional Qualifications".

(A) 4.1 General. Prior to certification as a Fire Service Agency NFPA 1003 Airport Fire Fighter, the requirements of NFPA 1001 Fire Fighter II, as specified by the Department, and the job performance requirements defined in sections 4.1 through 4.4, must be met.

(B) All applicants for certification must complete a Department-approved task book for Airport Fire Fighter. The task book must be approved by the Agency Head or Training Officer before an applicant can qualify for certification.

NFPA Airport Fire Fighter Requirements

4.1 General. To be qualified as an airport fire fighter, the candidate shall meet each of the job performance requirements defined in this chapter. These requirements shall be divided into three major duties: response, fire suppression, and rescue. The primary function of the airport fire fighter shall be to execute fire suppression and rescue activities.

4.2 Response. This duty involves the timely arrival at an incident or accident and the capability to perform emergency functions. The duty also includes responding to hazardous conditions and performing standby operations.

5.3 Fire Suppression. This duty involves the attack, control, and extinguishment of fires involving aircraft, aircraft cargo, airport facilities, and other equipment related to airport operations and property conservation. The primary purpose of this duty is to protect lives and property.

5.4 Rescue. This duty involves gaining access to an aircraft and assisting in the evacuation process, performing disentanglement, and initial triage.

Course Requirement Options:

- DPSST approved “NFPA Airport Fire Fighter” courses or;
- DPSST approved college courses that meets the standard for NFPA 1003 Airport Fire Fighter or;
- Federal Aviation Administration (FAA) courses that meet the standard for NFPA 1003 (refer to the most current version of FAA Advisory Circular 150/5210-17 for course options) or;
- Equivalent Course (Nationally Recognized Curriculum)

Note To Applicant:

- DPSST approved courses must be successfully “Passed” in order to receive credit towards certification.
- College courses must be passed with a grade of a “C” or better in order to receive credit towards certification.
- Placement tests will **not** be accepted as an equivalent to any course requirements.
- Transcripts that document transfer credits as a “Transfer” or “T” grade will **not** be accepted. Applicants must provide transcripts from the transferring college with a passing grade of a “C” or better.

Task Book Information:

Task Book must be completed for certification unless seeking reciprocity from IFSAC or ProBoard. Task Books should only be signed off once proficiency is demonstrated.

NFPA Airport Fire Fighter Task Book Guide

Portions of this guide are reprinted with permission from NFPA 1003 - 2015 Edition, "Standard for Airport Fire Fighter Professional Qualifications", Copyright 2016. National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

The following Annex A, Annex B and Annex C have been provided in this guide to aid in the completion of the task book. The annexes have been copied from the NFPA standard for Airport Fire Fighter, with the permission on NFPA. Reprinting this information is permitted from this guide, however, altering the following information is not permitted

NOTE: The following section of the NFPA standard for Airport Fire Fighter should be used when determining the size of the aircraft utilized for training purposes.

Annex A Explanatory Material

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

A.1.2 The committee believes that this document specifies the minimum job performance requirements for Airport Fire Fighters. The committee recognizes that emergency services organizations might have to invest considerable resources to provide the equipment and training needed to perform safely and efficiently. The committee does not mean to imply that organizations with limited resources cannot provide response services, only that the individuals charged with performing responsibilities are qualified to specific levels according to this standard.

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

A.1.2.6 The committee recognizes the importance of formal and continuing education and training programs to ensure Airport Fire Fighters have maintained and updated the necessary skills and knowledge for the level of qualification. Continuing education and training programs can be developed or administered by local, state, provincial, or federal agencies as well as professional associations and accredited institutions of higher education. The methods of learning would include areas of technology, refresher training, skills practices, and knowledge application to standards. The subject matter should directly relate to the requirements of this standard.

A.1.3.3 It is recommended, where practical, that evaluators be individuals who were not directly involved as instructors for the requirement being evaluated.

A.3.1 Definitions of action verbs used in the job performance requirements in this document are based on the first definition of the word found in Merriam-Webster's Collegiate Dictionary, 11th edition.

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

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

A.3.3.8 Hazardous Area. The hazardous area can be adjusted by the incident commander, based on site conditions and risk analysis.

A.3.3.10 National Defense Area. Establishment of a national defense area temporarily places such nonfederal lands under the effective control of the Department of Defense and results only from an emergency event. The senior DOD representative at the scene will define the boundary, mark it with a physical barrier, and post warning signs. The landlord's consent and cooperation will be obtained whenever possible; however, military necessity will dictate the final decision regarding location, shape, and size of the national defense area.

A.3.3.11 Personal Protective Equipment (PPE). For fire fighters, approved personal protective equipment should meet the most recent edition of NFPA 1971, with self-contained breathing apparatus (SCBA) meeting NFPA 1981, and personal alert safety systems (PASS) meeting NFPA 1982.

A.3.3.16 Theoretical Critical Fire Area (TCA). The TCA is the theoretical area adjacent to an aircraft in which fire must be controlled for the purpose of ensuring temporary fuselage integrity and providing an escape area for its occupants.

The "Report of the Second Meeting of the ICAO Rescue and Fire Fighting Panel" (RFFP-II) was prepared with the benefit of large test fire experiments conducted by a member country aimed at estimating the size of the TCA (Geyer 1972). Geyer's study paid particular attention to the width on each side of the fuselage that would have to be secured to protect the aircraft's skin from melting under severe fire conditions. On the basis of the data presented in the resulting report, the RFFP agreed that the TCA should be a rectangle having as one dimension the overall length of the aircraft and the other dimension determined by the following:

- (1) For aircraft with an overall length of less than 65 ft (20 m), 40 ft (12 m) plus the width of the fuselage
- (2) For aircraft with an overall length of 65 ft (20 m) or more, 100 ft (30 m) plus the width of the fuselage

The theoretical critical area serves only as a means for categorizing aircraft in terms of the magnitude of the potential fire hazard in which they can become involved. It is not intended to represent the average, maximum, or minimum spill fire size associated with a particular aircraft. The original formulas for the maximum theoretical critical area, as presented in the RFFP-II report, were given as follows:

$$\begin{aligned} &\text{For U.S. units:} \\ &A_T = L \times (100 + w) \text{ where } L \geq 65 \text{ ft} \\ &A_T = L \times (40 + w) \text{ where } L < 65 \text{ ft} \end{aligned} \quad [\text{A.3.3.16a}]$$

$$\begin{aligned} &\text{For SI units:} \\ &A_T = L \times (30 + w) \text{ where } L \geq 20 \text{ m} \\ &A_T = L \times (12 + w) \text{ where } L < 20 \text{ m} \end{aligned}$$

where:

L = overall length of the aircraft
 w = width of the aircraft fuselage
 A_T = theoretical critical area (TCA)

The data analyzed by RFFP-II in its effort to respond to the issue of TCA versus practical critical area (PCA) appeared to indicate that the PCA was approximately two-thirds of the TCA. This had been verified by a study conducted by one of the member countries of actual spill fire sizes and aircraft accidents (Ansart 1970). Another analysis of aircraft rescue and fire-fighting operations had not included the study of the PCA

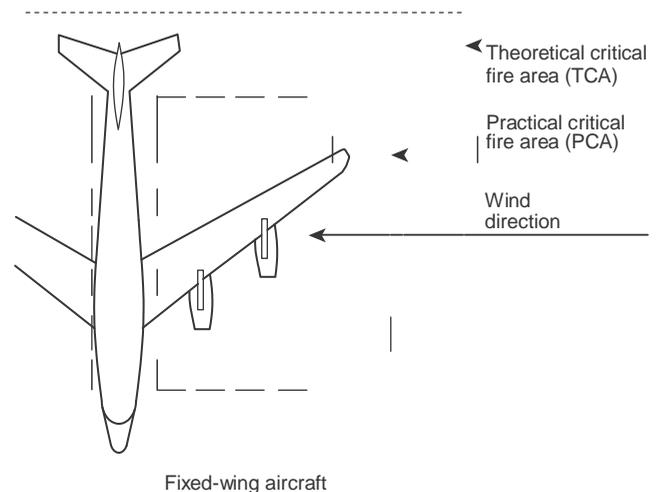


FIGURE A.3.3.16 Theoretical Critical Fire Area (TCA) Relative to Practical Critical Fire Area (PCA). [403: Figure B.2.1]

as compared to the TCA. However, that study did compare the actual amount of water used for foam at those accidents with the amounts recommended by RFFP-I. It was found that in 93 percent of accidents for which this information was available (99 cases out of 106), the amounts recommended by the Panel were in excess of those required in the actual aircraft accident. In light of this, the Panel decided to use two-thirds of the TCA as the PCA. (See Figure A.3.3.16 for a graphic display of this concept.) The formula for the PCA developed by RFFP-II for fixed-wing aircraft can be expressed as follows:

$$PCA = (0.67) \times (TCA) \quad [\text{A.3.3.16b}]$$

A.3.3.17.1 Cold Zone. The purpose of the cold zone is to ensure that there is an easily recognized boundary for arriving fire fighters and support personnel so that they do not impinge on the hazardous area, where SCBA and PPE are required. The secondary purpose of the cold zone is a distance sufficient for an initial hand line to reach the entrance of the aircraft interior.

A.3.3.17.2 Hot Zone. This zone is also referred to as the *exclusion zone* or the *restricted zone* in other documents.

A.3.3.17.3 Warm Zone. The warm zone includes control points for the decontamination corridor, thus helping to reduce the spread of contamination. This zone is also referred to as the *decontamination zone* or *limited access zone* in other documents.

A.4.1.1.3 Airport fire fighters should possess knowledge of military aircraft at those airports that accept military aircraft or at those airports that are co-located with a military installation with either separate or shared runways. This knowledge should include the following:

- (1) Military cargo/passenger aircraft
- (2) Military tanker aircraft
- (3) Military fighter/attack aircraft
- (4) Military helicopter aircraft
- (5) USAF Technical Order 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information (Emergency Services)*, contains specific information concerning aircraft rescue and fire fighting procedures and should be consulted prior to any attempt to perform rescue operations if

trained military specialists are not available for immediate assistance. USN/USMC aircraft information is located in NAVAIR 00-80R-14 and 00-80R-14-1. These documents contain specific information concerning fire fighting and rescue operations for aircraft in the military inventory. They specifically address the following:

- (a) Entry. If the emergency controls are activated, an explosive charge will explosively separate the canopy from the aircraft.
- (b) Ejection Systems. All fighter, bomber, and attack aircraft are equipped with ejection seats. Once access has been gained to the cockpit, caution is extremely important, because these ejection seats, when activated, are propelled out of the aircraft by an explosive charge. Airport fire fighters should not touch or activate any controls. Note that if a canopy or hatch has been separated from an aircraft, the ejection seat is automatically armed. Extreme caution must be exercised in crew removal.
- (c) Extrication. The aircrew member is secured to the seat by a series of straps, harnesses, and restraint belts. These restraints can be released by cutting if the release procedure is unknown.
- (d) Ordnance. Fighter and attack aircraft will have forward firing ordnance located in the forward part of the fuselage or wings.
- (e) Engine Shutdown. Engine shutdown usually can be accomplished by pulling T-handles, as on a commercial jet.

The NFPA *Aircraft Familiarization Charts Manual*, which contains complete diagrams of 115 types of aircraft, detailing their physical characteristics, is also helpful.

A.4.2.4 Hazardous conditions include foreign object debris (FOD), special fuels, fueling operations (grounding and bonding), welding operations, hazardous materials operations, corrosion control, fuel cell maintenance, and military operations.

A.4.3.1 The use of pressurized flammable gas or flammable liquid is acceptable for this simulation. Depending on the square footage of the local training simulators and the flow rate of the assigned application device, the specified time of extinguishment might need to be modified. When using simulators with lower square footage or different flow rates of agent application, the specified time of extinguishment will need to be proportional.

For example, a hand line flowing 95 gpm (359 L/min) would be required to extinguish a fire of 750 ft² in 90 seconds. The formula is $95 \text{ gpm} / 0.13 = 730$ fire square footage for 750 ft² (69.7 m²) fire with a flow rate at 359 L/min (95 gpm).

A.4.3.2 See A.4.3.1. For example, a candidate using a turret flowing 250 gpm (946 L/min) is required to extinguish a fire of 2067 ft² in 90 seconds for 2067 ft² (192 m²) fire with a flow rate at 250 gpm (946 L/min).

A.4.3.3 Three-dimensional or running fuel fires involve a fuel leak from an elevated or pressurized source. The fuel burns as it falls through the air, and, once on the ground, the burning fuel can pool or run across the ground surface. These fuel fires are extremely difficult to extinguish. They must be recognized and action must be taken to extinguish them early in the incident or accident for successful fire-fighting operations. Typically, these fires cannot be extinguished by smothering agents such as AFFF, because those agents cannot seal the

surface and exclude oxygen. Such fires are more successfully extinguished by shutting off the fuel flow or by using agents, such as dry chemicals, that interfere with the chemical or chain reaction.

A.4.3.4 This requirement can be met by using a structural burn facility that is configured to simulate the interior layout and dimensions of an aircraft fuselage and that contains mannequins to simulate victims. The mock-up should include at least three metal seats and training dummies to simulate victims. It is intended that the size of the aircraft be the largest type that normally uses the airport and that the hand line be appropriate to the size of the aircraft.

A.4.3.5 Shutting down the aircraft includes turning off engines/power units, electrical, and oxygen systems. Training and evaluation of engine/APU shut down and activation of on-board aircraft fire-fighting systems can be accomplished using simulation on actual aircraft or mock-ups.

A.4.3.7 Training and evaluation of this task can be accomplished using actual aircraft or mock-ups and smoke-generation devices used for training.

A.4.3.8 The replenishment task is time critical. Evaluating the proficiency of potential ARFF personnel to replenish the extinguishing agents on an ARFF vehicle requires that the AHJ evaluate several factors related to its own airport emergency plan in order to establish a fair benchmark for personnel. The following factors influence this time constraint:

- (1) Size of the ARFF vehicles' agent reservoirs
- (2) Available replenishment methods and their agent flow capacities
- (3) Proximity of replenishment means to the potential ARFF emergency locations in and around the airport

In making these evaluations, the AHJ must keep in mind that its overall objective is to ensure an adequate agent flow at the scene during an emergency. The following is an example of determining the replenishment time variable:

If the typical ARFF vehicle on the airport runway holds 1500 gal (5677 L) of water and 150 gal (568 L) of AFFF, the replenishment means is a fixed water hydrant located at the midway point of the runways. If a hydrant flow capacity is 250 gal (946 L/min) and if the average time to drive from the approach and departure end of any runway to the mid-point is 2 minutes, then a reasonable time to replenish a vehicle and return it to operation from the end of the runway is 18 minutes. This allows 2 minutes to drive to the hydrant, 4 minutes to connect to the hydrant, 7 minutes to fill the water tank, 3 minutes to disconnect from the hydrant, and 2 minutes to drive back to the end of the runway.

This might be considered a reasonable amount of time to replenish the vehicle at this particular airport, if additional vehicles are available to continue support at the emergency scene, but it might be entirely too slow for an airport where this ARFF vehicle is the only vehicle available to support an aircraft scene. In this case, the replenishment plan should be reevaluated and adjusted to reduce the time required.

A.4.3.10 It is known that during overhaul, many fire fighters remove their respiratory protective equipment and as a result, expose themselves to probable contamination by carcinogens, toxic substances, and so forth. Respiratory protective equipment should be worn during overhaul and all PPE should be washed down after exposure in any incident involving fire.

A.4.4 One of the primary tasks of rescue operations is for the airport fire fighter to maintain a habitable environment around the fuselage and to assist with aircraft evacuation by stabilizing slide chutes and assisting and controlling the evacuees.

A.4.4.1 Securing the aircraft can include chocking/pinning the landing gear, safety ejection/ballistic chute systems, canopies, and safety weapons systems. Shutting down the aircraft includes turning off engines/power units, electrical, and oxygen systems. Training and evaluation of these tasks can be accomplished using simulation on actual aircraft or mock-ups.

A.4.4.2 Training and evaluation of this task can be accomplished using actual aircraft or mock-ups.

Annex B Explanation of the Professional Qualifications Standards and Concepts of JPRs

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

B.1 Explanation of the Professional Qualifications Standards and Concepts of Job Performance Requirements (JPRs). The primary benefit of establishing national professional qualifications standards is to provide both public and private sectors with a framework of the job requirements for emergency services personnel. Other benefits include enhancement of the profession, individual as well as organizational growth and development, and standardization of practices.

NFPA professional qualifications standards identify the minimum job performance requirements (JPRs) for specific emergency services levels and positions. The standards can be used for training design and evaluation; certification; measuring and critiquing on-the-job performance; defining hiring practices; job descriptions; and setting organizational policies, procedures, and goals.

Professional qualifications standards for specific jobs are organized by major areas of responsibility defined as “duties.” For example, the fire fighter’s duties might include fire department communications, fireground operations, and preparedness and maintenance, whereas the fire and life safety educator’s duties might include education and implementation, planning and development, and evaluation. Duties are major functional areas of responsibility within a specific job.

The professional qualifications standards are written as JPRs. JPRs describe the performance required for a specific job and are grouped according to the duties of the job. The complete list of JPRs for each duty defines what an individual must be able to do in order to perform and achieve that duty.

B.2 The Parts of a JPR.

B.2.1 Critical Components. The JPR comprises three critical components, which are as follows:

- (1) Task to be performed, partial description using an action verb
- (2) Tools, equipment, or materials that are to be provided to complete the task
- (3) Evaluation parameters and performance outcomes

Table B.2.1 gives an example of the critical components of a JPR.

B.2.1.1 The Task to Be Performed. The first component is a concise statement of what the individual is required to do. A significant aspect of that phrase is the use of an action verb, which sets the expectation for what is to be accomplished.

Table B.2.1 Example of a JPR

(1) Task to be performed	(1) Perform overhaul at a fire scene,
(2) Tools, equipment, or materials	(2) given approved PPE, attack line, hand tools, flashlight, and an assignment,
(3) Evaluation parameters and performance outcomes	(3) so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

B.2.1.2 Tools, Equipment, or Materials That Must Be Provided for Successful Completion of the Task. This component ensures that all individuals completing the task are given the same tools, equipment, or materials when they are being evaluated. Both the individual and the evaluator will know what will be provided in order for the individual to complete the task.

B.2.1.3 Evaluation Parameters and Performance Outcomes. This component defines — for both the performer and the evaluator — how well the individual should perform each task. The JPR guides performance toward successful completion by identifying evaluation parameters and performance outcomes. This portion of the JPR promotes consistency in evaluation by reducing the variables used to gauge performance.

B.2.2 Requisite Knowledge and Skills. In addition to these three components, the JPR describes requisite knowledge and skills. As the term *requisite* suggests, these are the necessary knowledge and skills the individual should have prior to being able to perform the task. Requisite knowledge and skills are the foundation for task performance.

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

B.2.3.1 Example: Fire Fighter I. Perform overhaul at a fire scene, given approved PPE, attack line, hand tools, flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

(A) Requisite Knowledge. Knowledge of types of fire attack lines and water application devices for overhaul, water application methods for extinguishment that limit water damage, types of tools and methods used to expose hidden fire, dangers associated with overhaul, signs of area of origin or signs of arson, and reasons for protection of fire scene.

(B) Requisite Skills. The ability to deploy and operate an attack line; remove flooring, ceiling, and wall components to expose void spaces without compromising structural integrity; apply water for maximum effectiveness; expose and extinguish hidden fires in walls, ceilings, and subfloor spaces; recognize and preserve signs of area of origin and arson; and evaluate for complete extinguishment.

B.2.3.2 Example: Fire and Life Safety Educator II. Prepare a written budget proposal for a specific program or activity, given budgetary guidelines, program needs, and delivery ex-

pense projections, so that all guidelines are followed and the budget identifies all program needs.

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

(B) Requisite Skills. The ability to estimate project costs; complete budget forms; requisition/purchase orders; collect, organize, and format budgetary information; complete program budget proposal; and complete purchase requests.

B.3 Potential Uses for JPRs.

B.3.1 Certification. JPRs can be used to establish the evaluation criteria for certification at a specific job level. When used for certification, evaluation should be based on the successful completion of the JPRs.

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

The individual seeking certification would be evaluated on completion of the JPRs. The individual would perform the task and be evaluated based on the evaluation parameters and performance outcomes. This performance-based evaluation is based on practical exercises for psychomotor skills and written examinations for cognitive skills.

Psychomotor skills are those physical skills that can be demonstrated or observed. Cognitive skills cannot be observed but rather are evaluated on how an individual completes the task (process-oriented) or on the task outcome (product-oriented).

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

B.3.2 Curriculum Development and Training Design and Evaluation. The statements contained in this document that refer to job performance were designed and written as JPRs. Although a resemblance to instructional objectives might be present, these statements should not be used in a teaching situation until after they have been modified for instructional use.

JPRs state the behaviors required to perform specific skills on the job, as opposed to a learning situation. These statements should be converted into instructional objectives with behaviors, conditions, and degree to be measured within the educational environment.

While the differences between JPRs and instructional objectives are subtle in appearance, their purposes differ. JPRs state what is necessary to perform the job in practical and actual experience. Instructional objectives, on the other hand, are used to identify what students must do at the end of a training session and are stated in behavioral terms that are measurable in the training environment.

By converting JPRs into instructional objectives, instructors would be able to clarify performance expectations and avoid confusion caused by the use of statements designed for purposes other than teaching. Instructors would be able to add jurisdictional elements of performance into the learning objectives as intended by the developers.

Requisite skills and knowledge could be converted into enabling objectives, which would help to define the course content. The course content would include each item of the req-

uisite knowledge and skills, ensuring that the course content supports the terminal objective.

B.3.2.1 Example: Converting Fire Fighter I JPR into an Instructional Objective. The instructional objectives are just two of several instructional objectives that would be written to support the terminal objective based on the JPR.

JPR: Perform overhaul at a fire scene, given approved PPE, attack line, hand tools, flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

Instructional Objective (Cognitive): The Fire Fighter I will identify and describe five safety considerations associated with structural integrity compromise during overhaul as part of a written examination.

Instructional Objective (Psychomotor): The Fire Fighter I will demonstrate the designed use of tools and equipment during overhaul to locate and extinguish hidden fires without compromising structural integrity.

B.3.2.2 Example: Converting Fire and Life Safety Educator II JPR into an Instructional Objective. The instructional objectives are just two of several instructional objectives that would be written to support the terminal objective based on the JPR.

JPR: Prepare a written budget proposal for a specific program or activity, given budgetary guidelines, program needs, and delivery expense projections, so that all guidelines are followed and the budget identifies all program needs.

Instructional Objective (Cognitive): The Fire and Life Safety Educator II will list and describe the bidding process for the purchase of a published program using budgetary guidelines, program needs, and the guidelines established by local organizational procedures as part of a written examination.

Instructional Objective (Psychomotor): The Fire and Life Safety Educator II will lead in the purchase of a specific fire and life safety educational program by following the bidding process to completion, using local organizational guidelines, including budgetary procedures, program needs, and delivery expense projections.

B.4 Other Uses for JPRs. While the professional qualifications standards are used to establish minimum JPRs for qualification, they have been recognized as guides for the development of training and certification programs, as well as a number of other potential uses.

These areas might include the following:

- (1) *Employee Evaluation/Performance Critiquing.* The professional qualifications standards can be used as a guide by both the supervisor and the employee during an evaluation. The JPRs for a specific job define tasks that are essential to perform on the job, as well as the evaluation criteria to measure completion of the tasks.
- (2) *Establishing Hiring Criteria.* The professional qualifications standards can be helpful in a number of ways to further the establishment of hiring criteria. The authority having jurisdiction (AHJ) could simply require certification at a specific level, for example, Fire Fighter I. The JPRs could also be used as the basis for pre-employment screening to establish essential minimal tasks and the related evaluation criteria. An added benefit is that individuals interested in employment can work toward the minimal hiring criteria at local colleges.
- (3) *Employee Development.* The professional qualifications standards can be practical for both the employee and the em

ployer in developing a plan for the employee's growth within the organization. The JPRs and the associated requisite knowledge and skills can be used as a guide to determine additional training and education required for the employee to master the job or profession.

- (4) *Succession Planning*. Succession planning addresses the efficient placement of individuals into jobs in response to current needs and anticipated future needs. A career development path can be established for targeted employees to prepare them for growth within the organization. The JPRs and requisite knowledge and skills could then be used to develop an educational path to aid in the employee's advancement within the organization or profession.
- (5) *Establishing Organizational Policies, Procedures, and Goals*. The professional qualifications standards can be functional for incorporating policies, procedures, and goals into the organization or agency.

B.5 Bibliography. Annett, J., and N. E. Stanton, *Task Analysis*. London and New York: Taylor and Francis, 2000.

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

Dubois, D. D., *Competency-Based Performance Improvement: A Strategy for Organizational Change*. Amherst, MA: HRD Press, 1999.

Fine, S. A., and S. F. Cronshaw, *Functional Job Analysis: A Foundation for Human Resources Management (Applied Psychology Series)*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

Gupta, K., C. M. Sleezer (editor), and D. F. Russ-Eft (editor), *A Practical Guide to Needs Assessment*. San Francisco: Jossey-Bass/Pfeiffer, 2007.

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

Hodell, C., *ISD from the Ground Up: A No-Nonsense Approach to Instructional Design*, 3rd edition. Alexandria, VA: American Society for Training & Development, 2011.

Jonassen, D. H., M. Tessmer, and W. H. Hannum, *Task Analysis Methods for Instructional Design*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

McArdle, G., *Conducting a Needs Analysis (Fifty-Minute Book)*. Boston: Crisp Learning, 1998.

McCain, D. V., *Creating Training Courses (When You're Not a Trainer)*. Alexandria, VA: American Society for Training & Development, 1999.

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

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

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

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

Robinson, D. G., and J. C. Robinson (Eds.), *Moving from Training to Performance: A Practical Guidebook*. Alexandria, VA: American Society for Training & Development; San Francisco: Berrett-Koehler, 1998.

Schippmann, J. S., *Strategic Job Modeling: Working at the Core of Integrated Human Resources*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

Shepherd, A., *Hierarchical Task Analysis*. London and New York: Taylor and Francis, 2000.

Zemke, R., and T. Kramlinger, *Figuring Things Out: A Trainer's Guide to Needs and Task Analysis*. New York: Perseus Books, 1993.

Annex C Informational References

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

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

NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2013 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, 2013 edition.

NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*, 2013 edition.

NFPA Aircraft Familiarization Charts Manual, 1996.

C.1.2 Other Publications. Ansart, F., Analysis of Reports of Accidents No. 1 to 217 Filed with ICAO as of March 1970, Unpublished meeting records of reference material used by RFFP-II.

Geyer, G. B., "Evaluation of Aircraft Ground Fire Fighting Agents and Techniques," Report No. AGFSRS-71-1, Tri-Service Systems Program Office Aircraft Ground Fire Suppression and Rescue, Wright-Patterson AFB, OH 45433, February 1972. NTIS No. AD 741 881, Section VIII, p. 172ff.

NAVAIR 00-80R-14 and 00-80R-14-1, available at <https://www.natec.navy.mil/> (registration required).

USAF Technical Order 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information (Emergency Services)*, HQ AFCEA/CEXF, 139 Barnes Drive, Suite 1, Tyndall AFB, FL 32403-5319, phone: 1-888-AFCE-SA-1.

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

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

Boyatzis, R. E. (1982). *The Competent Manager: A Model for Effective Performance*. New York: John Wiley & Sons.

Canadian Aviation Regulations (CARs), Subpart 3—Aircraft Rescue and Fire Fighting at Airports and Aerodromes, 2012-1.

Castle, D. K. (1989). "Management Design: A Competency Approach to Create Exemplar Performers." *Performance and Instruction*, 28, pp. 42–48.

Cetron, M., and O'Toole, T. (1983). *Encounters with the Future: A Forecast into the 21st Century*. New York: McGraw Hill.

Elkin, G. (1990). "Competency-Based Human Resource Development: Making Sense of the Ideas." *Industrial and Commercial Training*, 22, pp. 20–25.

Furnham, A. (1990). "The Question of Competency." *Personnel Management*, 22, p. 37.

Gilley, J. W., and Eggland, S. A. (2002). *Principles of Human Resource Development*. Reading, MA: Addison-Wesley.

Harley, R. A., Chairman, "Report of the Second Meeting of the ICAO Rescue and Fire Fighting Panel (RFFP-II)," June 5–16, 1972, Montreal, Canada.

Hooton, J. (1990). *Job Performance = Tasks + Competency × Future Forces*. Unpublished manuscript, Vanderbilt University, Peabody College, Nashville, TN.

International Standards and Recommended Practices (July 2009). *Aerodromes, Annex 14 to the Convention on International Civil Aviation*, Volume 1 Aerodrome Design and Operations, ICAO, 999 University Street, Montreal, Canada H3C 5H7.

McLagan, P. A. (1989). "Models for HRD Practice." *Training and Development Journal*, reprinted.

McLagan, P. A. and Suhadolnik, D. (1989). *The Research Report*. Alexandria, VA: American Society for Training and Development.

Nadler, L. (1983). "HRD on the Spaceship Earth." *Training and Development Journal*, October, pp. 19–22.

Nadler, L. (1984). *The Handbook of Human Resource Development*. New York: Wiley-Interscience.

Naisbitt, J. (speaker) (1984). *Megatrends* (cassette recording No. 210). Chicago: Nightingale-Conant.

North Atlantic Treaty Organization (NATO), NATO Standardization Agency (NSA), Standardization Agreement (STANAG) (December 2003). *Minimum Core Competency Levels and Proficiency of Skills for NATO Fire Fighters*, Brussels, Belgium.

Spellman, B. P. (1987). "Future Competencies of the Educational Public Relations Specialist" (doctoral dissertation, University of Houston, 1987). *Dissertation Abstracts International*, 49, 02A.

Springer, J. (1980). *Job Performance Standards and Measures*. A series of research presentations and discussions for the ASTD Second Annual Invitational Research Seminar, Savannah, GA (November 5–8, 1979). Madison, WI: American Society for Training and Development.

Tracey, W. R. (1992). *Designing Training and Development Systems*. New York: AMACOM.

C.3 Annex B Bibliography. Annett, J., and N. E. Stanton, *Task Analysis*. London and New York: Taylor and Francis, 2000.

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

Dubois, D. D., *Competency-Based Performance Improvement: A Strategy for Organizational Change*. Amherst, MA: HRD Press, 1999.

Fine, S. A., and S. F. Cronshaw, *Functional Job Analysis: A Foundation for Human Resources Management (Applied Psychology Series)*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

Gupta, K., C. M. Sleezer (editor), and D. F. Russ-Eft (editor), *A Practical Guide to Needs Assessment*. San Francisco: Jossey-Bass/Pfeiffer, 2007.

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

Hodell, C., *ISD from the Ground Up: A No-Nonsense Approach to Instructional Design*, 3rd edition. Alexandria, VA: American Society for Training & Development, 2011.

Jonassen, D. H., M. Tessmer, and W. H. Hannum, *Task Analysis Methods for Instructional Design*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

McArdle, G., *Conducting a Needs Analysis (Fifty-Minute Book)*. Boston: Crisp Learning, 1998.

McCain, D. V., *Creating Training Courses (When You're Not a Trainer)*. Alexandria, VA: American Society for Training & Development, 1999.

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

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

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

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

Robinson, D. G., and J. C. Robinson (Eds.), *Moving from Training to Performance: A Practical Guidebook*. Alexandria, VA: American Society for Training & Development; San Francisco: Berrett-Koehler, 1998.

Schippmann, J. S., *Strategic Job Modeling: Working at the Core of Integrated Human Resources*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

Shepherd, A., *Hierarchical Task Analysis*. London and New York: Taylor and Francis, 2000.

Zemke, R., and T. Kramlinger, *Figuring Things Out: A Trainer's Guide to Needs and Task Analysis*. New York: Perseus Books, 1993.

C.4 References for Extracts in Informational Sections. NFPA 403, *Standard for Aircraft Rescue and Fire-Fighting Services at Airports*, 2014 edit