

NFPA® 1580

Standard for Emergency Responder Occupational Health and Wellness

2025 Edition



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NFPA® 1580

Standard for

Emergency Responder Occupational Health and Wellness

2025 Edition

This edition of NFPA 1580, *Standard for Emergency Responder Occupational Health and Wellness*, was prepared by the Technical Committee on Emergency Responders Occupational Health. It was issued by the Standards Council on November 16, 2024, with an effective date of December 6, 2024.

This edition of NFPA 1580 was approved as an American National Standard on December 6, 2024.

Origin and Development of NFPA 1580

This first edition of NFPA 1580, *Standard on Emergency Responder Occupational Health and Wellness*, has been developed as part of the consolidation plan for NFPA's Emergency Response and Responder Safety (ERRS) standards. At the April 2019 NFPA Standards Council meeting, all ERRS technical committees and NFPA staff were directed to consolidate and unify the ERRS standards with similar content areas. The goal of this effort is to increase usability, reduce errors and conflicts, and ultimately produce higher quality standards. For more information on the ERRS consolidation project, see nfpa.org/errs.

The 2025 edition of NFPA 1580 marks the integration of NFPA 1581, *Standard on Fire Department Infection Control Program*, NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Department Members*, and NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*, into a single standard that establishes a common set of criteria for emergency responder occupational health.

In addition to the structural changes related to the consolidation project, this edition also contains several new technical changes. One significant change incorporated into the new standard is the tentative interim amendments (TIAs) issued on the 2022 edition of NFPA 1582 which created common criteria for both members and candidates. The technical committee also incorporated a recommended age/gender adjustments for cardiorespiratory fitness and aerobic capacity and clarified roles and responsibilities for decision makers. The technical committee also took the opportunity to update requirements related to fitness and rehabilitation.

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

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Committee Scope: This committee shall have primary responsibility for documents on occupational health, medical, and wellness requirements for emergency responders. The committee shall also have responsibility for documents pertaining to contamination and infection control.

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

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

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

Chapter 1 Administration

1.1 Scope. This standard contains minimum requirements for a fire department infection control program; descriptive requirements for a comprehensive occupational medical program for fire departments; establishes the minimum requirements for the development, implementation, and management of a health-related fitness program (HREFP) for members of the fire department involved in emergency operations; and establishes the minimum criteria for developing and implementing processes for member prehabilitation, contamination control, rehabilitation, and recovery from incident scene operations and training exercises.

1.2 Purpose. The purpose of this standard is to provide minimum criteria for infection control in the fire station, in the fire apparatus, during procedures at an incident scene, and at any other area where fire department members are involved in routine or emergency operations; to outline an occupational medical program that, when implemented in a fire department, will reduce the risk and burden of fire service occupa-

tional morbidity and mortality while improving the health, and thus the safety and effectiveness, of firefighters operating to protect members of the public’s life and property; to provide the minimum requirements for a health-related fitness program for fire department members that enhances the members’ ability to perform occupational activities efficiently and safely and reduces the risk of injury, disease, and premature death, to help fire departments develop a health-related fitness program for fire department members that requires mandatory participation but is nonpunitive; and describes the prerehabilitation, contamination control, rehabilitation, and post-incident recovery processes for members prior to, during, and after incident scene operations, training, and exercises.

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

- (1) Chapters 1 through 3; 4 through 8; and Annexes A, B, C, and K constitute NFPA 1581.
- (2) Chapters 1 through 3; 9 through 13; and Annexes A, D, E, F, G, and K constitute NFPA 1582.
- (3) Chapters 1 through 3; 14 through 19; and Annexes A, H, I, and K constitute NFPA 1583.
- (4) Chapters 1 through 3; 20 through 23; and Annexes A, J, and K, constitute NFPA 1584.

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

Table 1.4 US-to-SI Conversions

Quantity	US Unit/Symbol	SI Unit/Symbol	Conversion Factor
Length	inch (in.)	millimeter (mm)	1 in. = 25.4 mm
	foot (ft)	meter (m)	1 ft = 0.305 m
Area	square foot (ft²)	square meter (m²)	1 ft² = 0.0929 m²

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

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

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

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

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

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

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

NFPA 1550, *Standard for Emergency Responder Health and Safety*, 2024 edition.

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

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

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

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

2.3 Other Publications.

2.3.1 CDC Publications. Centers for Disease Control and Prevention, 1600 Clifton Road, Atlanta, GA 30333.

“Poliomyelitis Prevention in the United States: Updated Recommendations of the Advisory Committee on Immunization Practices (ACIP),” *Morbidity and Mortality Weekly Report*, 49(No. RR-5):1-22, May 19, 2000.

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

Selecting, Evaluating, and Using Sharps Disposal Containers. Publication No. 97-111, NIOSH, US Department of Health and Human Services. www.cdc.gov/niosh/docs/97-111/pdfs/97-111.pdf.

Title 29, Code of Federal Regulations, Part 1910.95, “Occupational Noise Exposure,” 1996.

Title 29, Code of Federal Regulations, Part 1910.120, “Hazardous Waste Operations and Emergency Response,” 2002.

Title 29, Code of Federal Regulations, Part 1910.134, “Respiratory Protection,” 1998.

Title 29, Code of Federal Regulations, Part 1910.1020, “Access to Employee Exposure and Medical Records,” 1996.

Title 29, Code of Federal Regulations, Part 1910.1030, “Bloodborne Pathogens,” 2001.

US Dept. of Health & Human Services, National Heart, Lung and Blood Institute, *Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure* (JNC 8), 2014.

2.3.3 Other Publications.

American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5_TR), fifth edition. <https://www.psychiatry.org/psychiatrists/practice/dsm>

International Council of Ophthalmology, “International Clinical Diabetic Retinopathy Disease Severity Scale,” San Francisco, CA, October 2002. <http://www.icoph.org/standards/pdrdetail.html>

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

2.4 References for Extracts in Mandatory Sections.

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

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

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

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

NFPA 1550, *Standard for Emergency Responder Health and Safety*, 2024 edition.

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

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

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

Chapter 3 Definitions

3.1 General.

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

3.1.2 Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used.

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

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

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

3.2.3 Shall. Indicates a mandatory requirement.

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

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

3.3* General Definitions.

3.3.1 Active Cooling. See 3.3.16.1.

3.3.2 Advanced Life Support (ALS). Functional provision of advanced airway management including intubation, advanced cardiac monitoring, manual defibrillation, establishment and maintenance of intravenous access, and drug therapy.

3.3.3 Ambulance. A vehicle used for out-of-hospital medical care and patient transport that provides a driver’s compartment; a patient compartment to accommodate an emergency medical services provider (EMSP) and at least one patient located on the primary cot so positioned that the primary patient can be given emergency care during transit; equipment and supplies for emergency care at the scene as well as during transport; safety, comfort, and avoidance of aggravation of the

patient's injury or illness; two-way radio communication; and audible and visual traffic warning devices. [1900, 2024]

3.3.4* Basic Life Support (BLS). A specific level of prehospital medical care provided by trained responders, focused on rapidly evaluating a patient's condition; maintaining a patient's airway, breathing, and circulation; controlling external bleeding; preventing shock; and preventing further injury or disability by immobilizing potential spinal or other bone fractures.

3.3.5* Biological Sex. The sex assigned at birth.

3.3.6 Blood. Human blood, human blood components, and products made from human blood.

3.3.7 Body Fluids. Fluids that the body produces including, but not limited to, blood, semen, mucus, feces, urine, vaginal secretions, breast milk, amniotic fluids, cerebrospinal fluid, synovial fluid, pericardial fluid, sputum, saliva, and any other fluids that might contain pathogens.

3.3.8 Candidate. A person who has submitted an application to become a member of the fire department. [1550, 2024]

3.3.9 Cleaning. The physical removal of dirt and debris, which generally is accomplished with soap and water and physical scrubbing.

3.3.10 Cleaning Gloves. Multipurpose gloves, not for emergency patient care, that provide a barrier against body fluids, cleaning fluids, and disinfectants and limited physical protection to the wearer.

3.3.11 Company. A group of members (1) under the direct supervision of an officer; (2) trained and equipped to perform assigned tasks; (3) usually organized and identified as engine companies, ladder companies, rescue companies, squad companies, or multi-functional companies; (4) operating with one piece of fire apparatus (pumper, aerial fire apparatus, elevating platform, quint, rescue, squad, ambulance) except where multiple apparatus are assigned that are dispatched and arrive together, continuously operate together, and are managed by a single company officer; (5) arriving at the incident scene on fire apparatus. [1550, 2024]

3.3.12 Contaminants. Harmful, irritating, or nuisance material foreign to the normal atmosphere. [1550, 2024]

3.3.13 Contaminated. The presence or the reasonably anticipated presence of blood, body fluids, or other potentially infectious materials on an item or surface.

3.3.14 Contaminated Sharps. Any contaminated object that can penetrate the skin including, but not limited to, needles, lancets, scalpels, broken glass, jagged metal, or other debris.

3.3.15 Contamination. The accumulation of products of combustion and other hazardous materials on or in an ensemble element that includes carcinogenic, toxic, corrosive, or allergy-causing chemicals, body fluids, infectious microorganisms, or [chemical, biological, radiological, and nuclear defense] CBRN terrorism agents. [1851, 2020]

3.3.16 Cooling.

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

3.3.16.2 Passive Cooling. The process of using natural evaporative cooling (e.g., sweating, doffing personal protective

equipment, moving to a cool environment) to reduce elevated core body temperature.

3.3.17* Core Body Temperature. The temperature deep within a living body.

3.3.18 Crew. A team of two or more firefighters. [1550, 2024]

3.3.19 Debilitating Illness or Injury. A condition that temporarily or permanently prevents a member of the fire department from engaging in normal duties and activities as a result of illness or injury. [1550, 2024]

3.3.20 Decontamination. The use of physical or chemical means to remove, inactivate, or destroy bloodborne, airborne, or foodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

3.3.21* Disinfection. The process used to inactivate virtually all recognized pathogenic microorganisms but not necessarily all microbial forms, such as bacterial endospore.

3.3.22 Emergency Incident. Any situation to which an emergency services organization responds to deliver emergency services, including rescue, fire suppression, emergency medical care, special operations, law enforcement, and other forms of hazard control and mitigation. [1550, 2024]

3.3.23 Emergency Medical Care. The treatment of patients, using first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other medical protocols prior to arrival at a hospital or other health care facility.

3.3.24 Emergency Medical Services. The provision of treatment, such as first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other prehospital procedures including ambulance transportation, to patients. [1550, 2024]

3.3.25 Emergency Operations. Activities of the fire department relating to rescue, fire suppression, emergency medical care, and special operations, including response to the scene of the incident and all functions performed at the scene. [1550, 2024]

3.3.26 Energy Drink. A type of beverage containing stimulant drugs (caffeine and other ingredients such as taurine, ginseng, and guarana) that is marketed as providing mental or physical stimulation.

3.3.27* Engineering Controls. Physical features or mechanical processes within fixed facilities or vehicles that are implemented to improve efficiency, safety, or comfort associated with their operation or use.

3.3.28 Environmental Surface. Interior patient care areas, both stationary and in vehicles, and other surfaces not designed for intrusive contact with the patient or contact with mucosal tissue.

3.3.29 Essential Job Task. Task or assigned duty that is critical to successful performance of the job. (See Chapter 10 and Section 13.3.)

3.3.30 Evaluation. See 3.3.68, Medical Evaluation.

3.3.31 Exposure.

3.3.31.1 Infectious Exposure. A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood, body fluids, or other potentially infectious material; inhalation of airborne pathogens; or ingestion of food-borne pathogens or toxins.

3.3.31.2 Occupational Exposure. An infectious exposure that resulted from performance of a member's duties.

3.3.32 Eyewear. See 3.3.105, Splash-Resistant Eyewear.

3.3.33 Face Protection Devices. An item of emergency medical protective clothing that is designed and configured to provide barrier protection to the wearer's eyes or face, or both.

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

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

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

3.3.37* Fire Department Facility. Any building or area owned, operated, occupied, or used by a fire department on a routine basis. [1550, 2024]

3.3.38 Fire Department Member. See 3.3.72, Member.

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

3.3.40* Fire Suppression. The activities involved in controlling and extinguishing fires. [1550, 2024]

3.3.41 Fluid-Resistant Clothing. Clothing worn for the purpose of isolating parts of the wearer's body from contact with body fluids.

3.3.42 Functional Capacity Evaluation. An assessment of the correlation between that individual's capabilities and the essential job tasks.

3.3.43 Garment. The coat, trouser, or coverall elements of the protective ensemble designed to provide minimum protection to the upper and lower torso, arms, and legs, excluding the head, hands, and feet.

3.3.44 Gross Decontamination. A term used in the hazardous materials response industry to indicate the partial removal of exterior contamination from protective clothing, usually by rinsing with water, sometimes with detergent, to allow for the safe exit of the responder from the protective clothing in the contamination reduction zone of an emergency incident. [1851, 2020]

3.3.45 Handwashing Facility. A facility providing an adequate supply of running potable water, liquid soap, and single-use towels or hot-air drying machines.

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

3.3.47 Health and Fitness Coordinator. The person who, under the supervision of the fire department physician, has been designated by the department to coordinate and be responsible for the health and fitness programs of the department. [1550, 2024]

3.3.48 Health and Safety Committee. A representative group of individuals who serve along with the fire department physician and health and fitness coordinator, and is chaired by the fire department health and safety officer, who oversee the implementation of the fire department occupational safety and health program.

3.3.49* Health and Safety Officer. The member of the fire department assigned and authorized by the fire chief as the manager of the safety, health, and wellness program. [1550, 2024]

3.3.50 Health Data Base. A compilation of records and data that relates to the health experience of a group of individuals and is maintained in a manner such that it is retrievable for study and analysis over a period of time. [1550, 2024]

3.3.51 Health Promotion. Preventive activities that identify real and potential health risks in the work environment and that inform, motivate, and otherwise help people to adopt and maintain healthy practices and lifestyles.

3.3.52* Health-Related Fitness Program (HRFP). A comprehensive program designed to promote the member's capacity to perform occupational activities; reduce the risk of musculoskeletal injuries, chronic disease, premature death; and improve overall well-being.

3.3.53 Hepatitis.

3.3.53.1 HBV. Hepatitis B virus.

3.3.53.2 HCV. Hepatitis C Virus.

3.3.54 HIV. Human immunodeficiency virus.

3.3.55* Hydration. The introduction of water in the form of food or fluids into the body.

3.3.56 Immunization. The process or procedure by which a person is rendered immune.

3.3.57 Implementation Outcomes. The specific results or effects that occur during the process of implementing a particular program, intervention, or innovation.

3.3.57.1 Acceptability Outcome. The perception among implementation stakeholders that a given treatment, service, practice, or innovation is agreeable, palatable, or satisfactory.

3.3.57.2 Adoption Outcome. The intention, initial decision, or action to try or employ an innovation or evidence-based practice.

3.3.57.3 Appropriateness Outcome. The perceived fit, relevance, or compatibility of the innovation or evidence-based practice for a given practice setting, provider, or consumer;

and/or the perceived fit of the innovation to address a particular issue or problem.

3.3.57.4 Feasibility Outcome. The extent to which a new treatment, or an innovation, can be successfully used or carried out within a given organization or setting.

3.3.57.5 Fidelity Outcome. The degree to which an intervention was implemented as it was prescribed in the original protocol or as it was intended by the program developers.

3.3.57.6 Implementation Cost Outcome. Reflects the financial, time, and resource investments required to implement an intervention, program, or policy, as well as any cost savings or cost-effectiveness associated with its implementation.

3.3.57.7 Penetration Outcome. The integration of an innovation, practice, or program within a service setting and its subsystems.

3.3.57.8 Sustainability Outcome. The extent to which a newly implemented treatment, program, or practice is maintained or institutionalized within a service setting's ongoing, stable operation.

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

3.3.59* Incident Management System (IMS). A system that defines the roles and responsibilities to be assumed by responders and the standard operating procedures to be used in the management and direction of emergency incidents and other functions. [1550, 2024]

3.3.60 Individual. A candidate or member.

3.3.61 Infection. The state or condition in which the body or a part of it is invaded by a pathogenic agent (microorganism or virus) that, under favorable conditions, multiplies and produces effects that are injurious.

3.3.62 Infection Control Officer. The person or persons within the fire department who are responsible for managing the department infection control program and for coordinating efforts surrounding the investigation of an exposure.

3.3.63* Infection Control Program. The fire department's formal policy and implementation of procedures relating to the control of infectious and communicable disease hazards where employees, patients, or the general public could be exposed to blood, body fluids, or other potentially infectious materials in the fire department work environment. [1550, 2024]

3.3.64 Infectious Disease. An illness or disease resulting from invasion of a host by disease-producing organisms such as bacteria, viruses, fungi, or parasites. [1550, 2024]

3.3.65* Kitchen. An area designated for storage, preparation, cooking, and serving of food for members.

3.3.66 Leakproof Bags. Bags that are sufficiently sturdy to prevent tearing or breaking and can be sealed securely to prevent leakage and that are red in color or display the universal biohazard symbol.

3.3.67 Mask. A device designed to limit exposure of the nasal, oral, respiratory, or mucosal membranes to airborne pathogens.

3.3.68 Medical Evaluation. The analysis of information for the purpose of making a determination of medical certification. Medical evaluation includes a medical examination.

3.3.69 Medical Examination. An examination performed or directed by the fire department physician.

3.3.70* Medical Gloves. Single-use patient examination gloves that are designed to provide barrier protection against body fluids to the wearer's hand and wrist.

3.3.71 Medical Waste. Items to be disposed of that have been contaminated with human waste, blood, or body fluids, or human waste, human tissue, blood, or body fluids for which special handling precautions are necessary.

3.3.72* Member. A person involved in performing the duties and responsibilities of a fire department, under the auspices of the organization. [1550, 2024]

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

3.3.74* Mental Health Professional. A board-certified psychiatrist, a psychiatric nurse practitioner, clinical psychologist, clinical professional counselor, or clinical social worker that is independently licensed to evaluate, diagnose, and treat mental health disorders in their state of practice and is in good standing with their state licensure board.

3.3.75* Morbidity. The state of being diseased.

3.3.76 Mucous Membrane. A moist layer of tissue that lines the mouth, eyes, nostrils, vagina, anus, or urethra.

3.3.77 Needle. A slender, usually sharp, pointed instrument used for puncturing tissues, suturing, drawing blood, or passing a ligature around a vessel.

3.3.78 Occupational Injury. An injury sustained during the performance of the duties, responsibilities, and functions of a fire department member. [1550, 2024]

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

3.3.80 Parenteral. Piercing of the mucous membranes or the skin barrier due to such events as needle sticks, human bites, cuts, and abrasions.

3.3.81 Passive Cooling. See 3.3.16.2.

3.3.82* Pathogens. Microorganisms such as bacteria, a virus, or a fungus that is capable of causing disease.

3.3.82.1 Aerosolized Airborne Transmission. Person-to-person transmission of an infectious agent by an aerosol of small particles able to remain airborne for long periods of time.

3.3.82.2* Aerosolized Droplet Transmission. Person-to-person transmission of an infectious agent by large particles able to remain airborne for only short periods of time.

3.3.82.3* Bioterrorism or Biologic Warfare Agents. Biological agents and toxins that have the potential to pose a severe

threat to human health and that can be used for or adapted for bioterrorist attacks.

3.3.82.4* Contact and Body Fluid Exposures. Person-to-person transmission of an infectious agent through direct or indirect contact with an infected person's blood or other bodily fluids.

3.3.83 Patient. An individual, living or dead, whose body fluids, tissues, or organs could be a source of exposure to the member.

3.3.84 Peer Fitness Trainer (PFT). A member with the background knowledge and practical expertise to share wellness- and fitness-related information with department members.

3.3.85* Peer Support. Emotional and practical support between two people who share a common experience, such as a mental health challenge or illness.

3.3.86* Personal Protective Equipment (PPE). Specialized clothing or equipment worn by a member for protection against a hazard.

3.3.87 Personnel Accountability System. A system that readily identifies both the location and function of all members operating at an incident scene. [1550, 2024]

3.3.88 Pocket Mask. A double-lumen device that is portable, pocket-size, and designed to protect the emergency care provider from direct contact with the mouth/lips or body fluids of a patient while performing artificial respiration.

3.3.89 Post-Exposure Prophylaxis. Administration of a medication to prevent development of an infectious disease following known or suspected exposure to that disease.

3.3.90 Potentially Infectious Materials. Any body fluid that is visibly contaminated with blood; all body fluids in situations where it is difficult or impossible to differentiate between body fluids; sputum, saliva, and other respiratory secretions; and any unfixed tissue or organ from a living or dead human.

3.3.91 Prehabilitation. Physical and lifestyle preparation strategies to increase capability and capacity, reduce the potential for injury, and improve readiness in anticipation of an upcoming stressor.

3.3.92* Preliminary Exposure Reduction. Techniques for reducing soiling and contamination levels on the exterior of protective clothing and equipment following incident operations. This is not the same as cleaning or decontamination.

3.3.93 Procedure. An organizational directive issued by the authority having jurisdiction or by the department that establishes a specific policy that must be followed. [1550, 2024]

3.3.94* Protective Ensemble. Multiple elements of compliant protective clothing that when worn together can reduce, but not eliminate, the health and safety risks of emergency incident operations.

3.3.95 Punitive. Inflicting or aiming to inflict punishment or sanctions.

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

3.3.97 Recovery. The process of returning a member's physiological and psychological states to levels that indicate the person is able to perform additional emergency tasks, be reassigned, or released without any adverse effects.

3.3.98 Regulated Waste. Liquid or semi-liquid blood, body fluids, or other potentially infectious materials; contaminated items that would release blood, body fluids, or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood, body fluids, or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood, body fluids, or other potentially infectious materials.

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

3.3.100 Rehabilitation Manager. The person or officer assigned to manage rehabilitation.

3.3.101 Resuscitation Equipment. Respiratory assist devices such as bag-valve masks, oxygen demand valve resuscitators, pocket masks, and other ventilation devices that are designed to provide artificial respiration or assist with ventilation of a patient.

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

3.3.103 Sharps Containers. Containers that are closable, puncture-resistant, disposable, and leakproof on the sides and bottom; red in color or display the universal biohazard symbol; and designed to store sharp objects after use per OSHA Blood-borne Pathogens Standard. [29 CFR Part 1910.1030]

3.3.104 Source Individual. Any individual, living or dead, whose blood, body fluids, or other potentially infectious materials has been a source of occupational exposure to a member.

3.3.105 Splash-Resistant Eyewear. Safety glasses, prescription eyewear with protective side shields, goggles, or chin-length face shields that, when worn properly, provide limited protection against splashes, spray, spatters, or droplets of body fluids. [1999, 2018] (*See also 3.3.33.*)

3.3.106 Sports Drink. A fluid replacement beverage that is between 4 percent and 8 percent carbohydrate and contains between 0.5 g and 0.7 g of sodium per liter of solution.

3.3.107 Standard Operating Guideline. A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely, which can be varied due to operational need in the performance of designated operations or actions. [1550, 2024]

3.3.108* Standard Operating Procedure. A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely for the performance of designated operations or actions. [1550, 2024]

3.3.109* Sterilization. The use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores.

3.3.110 Structural Firefighting Gloves. The element of the structural firefighting protective ensemble that provides protection to the hand and wrist.

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

3.3.112* Symptom-Limiting Exercise Stress Test with Imaging. An exercise test protocol that is discontinued only in the event of limiting symptoms, exertional hypotension, or ventricular tachycardia, without respect to peak heart rate.

3.3.113* Universal Precautions. An approach to infection control in which human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Chapter 4 Infection Control Program Components (NFPA 1581)

4.1 Administration.

4.1.1 Scope. Chapters 4 through 8 contain minimum requirements for a fire department infection control program.

4.1.2 Purpose. The purpose of Chapters 4 through 8 is to provide minimum criteria for infection control in the fire station, in the emergency vehicles, during procedures at an incident scene, and at any other area where fire department members are involved in routine or emergency operations.

4.1.3 Application.

4.1.3.1 The requirements of Chapters 4 through 8 apply to organizations providing rescue, fire suppression, emergency medical services, hazardous materials mitigation, special operations, and other emergency services, including public, military, private, and industrial fire departments.

4.1.3.2 Chapters 4 through 8 do not apply to facility fire brigades, which might also be known as emergency brigades, emergency response teams, fire teams, plant emergency organizations, or mine emergency response teams.

4.1.4 Equivalency.

4.1.4.1* The requirements of Chapters 4 through 8 are intended to meet or exceed the most current applicable federal regulations of the Occupational Safety and Health Administration (OSHA) and guidelines of the US Centers for Disease Control and Prevention (CDC).

4.1.4.2 The requirements in Chapters 4 through 8 are designed to provide minimum levels of protection from infection for members and patients, and for the public at fire department facilities.

4.1.4.3 Nothing herein is intended to restrict any jurisdiction from exceeding these minimum requirements.

4.2 Policy.

4.2.1 The fire department shall have a written infection control policy with the goal of identifying and limiting the exposure of members to infection during the performance of

their assigned duties and within the fire department working and living environment (*see Annex B*).

4.2.2 As part of the overall fire department safety and health program, the fire department shall implement an infection control program that meets the requirements of this standard.

4.2.3 The fire department shall provide for the cleaning and disinfection or disposal of the following:

- (1) Protective ensembles in accordance with NFPA 1851
- (2) Self-contained breathing apparatus (SCBA), including the facepiece and second-stage regulator, in accordance with NFPA 1852
- (3) Firefighting tools and other equipment
- (4) Station/work uniforms
- (5) Emergency medical equipment
- (6)* Emergency vehicles, ambulances, and other fire department vehicles (patient compartments and areas used by firefighters/EMS providers)
- (7) Fire department facilities

4.3* Risk Management.

4.3.1* The fire department shall incorporate infection control in the written risk management plan that meets the requirements specified in NFPA 1550.

4.3.2 The written risk management plan shall include the identification, evaluation, control, and monitoring of risks to the following:

- (1) Fire department facilities
- (2) Fire and emergency services vehicles
- (3) Emergency medical service operations
- (4) Members when cleaning and disinfecting protective clothing and equipment
- (5) Members from other situations that could result in occupational exposure to a communicable disease

4.4 Training and Education.

4.4.1* The fire department shall conduct initial and annual training and education programs for all members in accordance with state, provincial, or federal regulations.

4.4.2 The training program shall include the following:

- (1) Use of PPE
- (2) Standard operating procedures for safe work practices in infection control
- (3) Methods of disposal of contaminated articles and medical waste
- (4) Cleaning and decontamination
- (5) Exposure management
- (6) Medical follow-up

4.4.3* The education program shall provide information on the epidemiology, modes of transmission, and prevention of infectious diseases.

4.4.4 Members shall be educated in the potential reproductive health risks, to the individual as well as to the fetus, related to infectious diseases.

4.5 Infection Control Officer.

4.5.1 The fire department shall have a designated infection control officer.

4.5.1.1 Additional assistant infection control officers shall be appointed where warranted by the activities, size, or character of the fire department.

4.5.1.2 If the infection control officer is not available, additional assistant infection control officers shall be appointed to ensure coverage.

4.5.1.3 In the absence of the infection control officer and assistant infection control officers, alternate members shall be assigned to perform the duties and responsibilities that need immediate attention, regardless of their positions.

4.5.2 The position of infection control officer shall be full-time or part-time, depending on the size and character of the fire department.

4.5.3* The infection control officer shall be responsible for maintaining a liaison with the fire department physician, the health and safety officer, the infection control representative at health care facilities, and health care regulatory agencies.

4.5.4 When notified of an infectious exposure, the infection control officer shall ensure the following:

- (1) Notification, verification, treatment, and medical follow-up of members
- (2) Documentation of the infectious exposure as specified in 4.7.5

4.5.5 The infection control officer shall examine compliance procedures and engineering controls to ensure their effectiveness in accordance with the operational requirements of this standard.

4.5.6 The infection control officer shall be a designated member of the fire department's occupational safety and health committee.

4.5.7 The infection control officer shall be knowledgeable and cognizant of the issues associated with bioterrorism pathogens (e.g., anthrax, smallpox) and emerging infectious diseases (e.g., SARS, MRSA, *Clostridium difficile*) that members could encounter during the performance of their job duties, including, but not limited to, the following (*see Table A.4.4.3*):

- (1) Identification and screening
- (2) Immunizations
- (3) Efficacy of various PPE
- (4) Health effects education
- (5) Source control management
- (6) Post-exposure management
- (7) Post-incident management
- (8) Disinfection/decontamination of firefighting and other equipment

4.6 Health Maintenance.

4.6.1 A confidential health data base shall be established and maintained for each member as specified in NFPA 1550 and NFPA this standard, and in accordance with 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records."

4.6.1.1 This data base shall include:

- (1) Any occupational exposures
- (2) Vaccination status

4.6.1.2 The data base shall be maintained as a confidential medical record and not released unless mandated by public health statute.

4.6.2 Immunizations and Infectious Disease Screening.

4.6.2.1* The following infectious disease immunizations or infectious disease screenings shall be provided as indicated:

- (1) A tuberculosis screening program composed of the following:
 - (a)* Baseline tuberculin testing by either of the following:
 - i. A two-step tuberculin skin test according to the CDC procedures
 - ii. A blood test for mycobacterium tuberculosis using interferon-gamma release assays (IGRAs)
 - (b)* Subsequent tuberculin testing at a frequency determined by annual CDC risk assessment guidelines
- (2) Hepatitis B virus vaccinations and titers, as specified in CDC guidelines
- (3) Hepatitis C virus screens (baseline, following occupational exposure, and if requested by the fire department physician or member)
- (4) HIV screens (baseline, following occupational exposure, and if requested by the fire department physician or member)
- (5) Tetanus/diphtheria vaccine or tetanus/diphtheria/acellular pertussis (Tdap)
- (6) Measles, mumps, rubella (MMR) vaccine
- (7) Polio vaccine
- (8) Hepatitis A vaccine offered to high-risk personnel [HazMat, urban search and rescue (USAR), and SCUBA] and other personnel with frequent or expected exposures to contaminated water
- (9) Varicella vaccine offered to all nonimmune personnel
- (10) Influenza vaccine offered to all personnel annually
- (11) Vaccines for emerging threats (e.g., SARS-CoV-2) offered to all personnel, as needed

4.6.2.1.1 The infection control officer shall ensure the immunizations listed in 4.6.2.1 are consistent with current CDC guidelines.

4.6.2.2 If a member has a positive tuberculosis test, CDC guidelines for management and subsequent chest radiographic surveillance shall be followed.

4.6.2.3 All members shall be immunized against infectious diseases as required by the authority having jurisdiction and by 29 CFR 1910.1030, "Bloodborne Pathogens."

4.6.2.4 The fire department physician shall ensure that all members are offered currently recommended immunizations at no cost to the members.

4.6.2.5* Members who choose to decline immunizations offered by the department shall be required to sign a written declination.

4.6.2.5.1 The declination shall become part of the member's confidential health database.

4.6.2.5.2 Members shall be allowed to recant a declination at any time and receive the offered immunizations.

4.7 Infectious Exposures.

4.7.1 If a member has sustained an infectious exposure, the exposed area shall be immediately and thoroughly washed

using water on mucosal surfaces and liquid soap and running water on skin surfaces.

4.7.2 If soap and running water are not available, waterless cleansers, antiseptic wipes, alcohol, or other skin cleaning agents that do not need running water shall be used until liquid soap and running water are obtained.

4.7.3 The fire department shall have an established procedure and shall train in that procedure to ensure that when a member has an infectious exposure the immediate supervisor is notified and the member is offered immediate medical evaluation.

4.7.4* The fire department shall ensure that a member who has experienced an infectious exposure (real or perceived) receives immediate medical guidance, evaluation, and, if appropriate:

- (1) Post-exposure prophylaxis
- (2) Confidential, post-exposure counseling and subsequent testing

4.7.5* All infectious exposures shall be recorded in writing, in accordance with NFPA 1550, as soon as possible after the exposure using a standardized form designed to allow for follow-up.

4.7.5.1 The record shall include the following:

- (1) Description of the tasks being performed when the infectious exposure occurred
- (2) Source of transmission including any relevant medical and social history of the source
- (3) Portal of entry
- (4) PPE utilized
- (5) Disposition of medical management

4.7.5.2 The record of infectious exposures shall become part of the member's confidential health data base.

4.7.6 A complete record of the member's infectious exposures shall be available to the member upon request.

4.7.7 Infectious exposure data, without personal identifiers, also shall be added to the fire department health data base as specified in Chapter 13 of NFPA 1550.

4.7.8 Due to the hazardous nature of some communicable diseases, a member shall be required to report to the infection control officer when that member experiences a confirmed infectious exposure and is being medically treated or tested due to presenting signs or symptoms.

4.7.9 The fire department physician shall determine fitness-for-duty status after reviewing documentation of a member's infectious exposure.

Chapter 5 Infection Control for Fire Department Facilities (NFPA 1581)

5.1* General.

5.1.1* All fire department facilities shall comply with all relevant health and infection control laws and regulations.

5.1.1.1* Engineering controls shall be used to minimize surface contact to prevent or reduce the spread of contaminants.

5.1.1.2 All exposed floor and wall materials shall be hard surface, nonporous, and easy to clean or sanitize.

5.1.1.3 Infection control areas shall be designated as follows:

- (1) Red — Spaces likely to be exposed to bloodborne pathogens or infectious agents
- (2) Yellow — Transition areas between red and green control areas
- (3) Green — Clean areas such as living areas, kitchen, dormitory, and offices

5.1.2 Hand Washing Capacity.

5.1.2.1 Hand washing capacity shall be available in all areas of the fire station as identified in NFPA 1550.

5.1.2.2* If hand washing capacity is not available, waterless cleansers, antiseptic wipes, alcohol, or other skin cleaning agents, shall be available.

5.1.3 Hand cleaning shall occur before the member enters clean areas (green areas) of the facility.

5.2 Kitchen Areas.

5.2.1 All food preparation surfaces and all surfaces directly used for holding or hanging food preparation containers and utensils shall be of a nonporous material.

5.2.2 Shelving Above Sinks. Dish-washing areas shall be equipped with shelving or racks to drip-dry cleaned food preparation containers.

5.2.2.1 Shelving or racks shall be of nonporous material.

5.2.2.2 All drainage from the shelving or racks shall run into a sink or drainage pan that empties directly into a sanitary sewer system or septic system.

5.2.3* All kitchens shall have either double-basin sinks or two sinks.

5.2.3.1 A sprayer attachment shall be provided.

5.2.3.2 Sinks, adjacent countertops and dish drainage areas, and splash guards around the sink shall be of a nonporous material.

5.2.4* Kitchens in fire department facilities shall include the following appliances:

- (1) Range
- (2) Oven
- (3) At least one refrigerator
- (4) Dishwasher

5.2.5 Food Storage.

5.2.5.1 Perishable food that needs cold storage shall be kept at a temperature of 4°C (40°F) or lower.

5.2.5.2 Perishable food that needs freezer storage shall be kept at a temperature of -18°C (0°F) or lower.

5.2.5.3 All foods removed from their original manufactured packaging shall be kept in tightly sealed food containers or shall be wrapped with plastic food wrap.

5.2.6 Kitchens equipped with a dishwasher shall be capable of supplying water for washing at 60°C (140°F).

5.2.7 Food preparation and storage areas shall meet local health standards.

5.3 Sleeping Areas.

5.3.1 A minimum of 5.6 m² (60 ft²) of floor space per bed shall be provided in sleeping areas.

5.3.2 Ventilation, heating, and cooling shall be provided in sleeping areas.

5.4 Bathrooms.

5.4.1 A clearly visible sign reminding members to wash their hands shall be posted prominently in each bathroom.

5.4.2 Bathrooms shall meet local standards.

5.5 Equipment Storage Areas.

5.5.1* Emergency medical supplies and equipment stored in fire department facilities, other than those stored on vehicles, shall be stored in a dedicated, enclosed area to protect them from temperature degradation, contamination, and other physical damage.

5.5.2 The storage area shall be secured and labeled.

5.5.3 Open and reusable emergency medical supplies and equipment shall not be stored in personal clothing lockers or in areas used for the following:

- (1) Food preparation and cooking
- (2) Living
- (3) Sleeping
- (4) Recreation
- (5) Personal hygiene, unless physically separated in a locker or room

5.5.4 Personal Protective Equipment (PPE) Exposed to Infectious Agents.

5.5.4.1 PPE contaminated with blood or body fluids shall be isolated, cleaned, then stored in a dedicated, well-ventilated area or room.

5.5.4.2 Structural ensembles or ensemble elements contaminated with blood or body fluids shall be isolated as soon as possible and be cleaned in accordance with NFPA 1851.

5.5.4.3 PPE contaminated with blood or body fluids shall not be brought into the home or washed in home or public laundries.

5.5.4.4* PPE contaminated with blood or body fluids shall not be transported in private vehicles unless isolated.

5.5.5 Contaminated Storage.

5.5.5.1 Areas or containers for the temporary storage of contaminated medical supplies or equipment prior to disinfection or disposal shall be separated physically from members in facilities or on vehicles.

5.5.5.2 Such areas or containers shall not be used for any other purpose.

5.6 Cleaning Areas.

5.6.1 A designated cleaning area shall be provided in each fire station for the cleaning of PPE, portable equipment, and other clothing.

5.6.2* The cleaning area shall have ventilation, lighting, and drainage connected to a sanitary sewer system or septic system.

5.6.3 The designated cleaning area shall be physically separate from areas used for the following:

- (1) Cleaning of food and cooking utensils
- (2) Food preparation
- (3) Personal hygiene
- (4) Sleeping
- (5) Living

5.6.4 The designated cleaning area shall be physically separate from the disinfecting facility and laundry facility.

5.7 Disinfecting Facilities.

5.7.1* Fire departments that provide emergency medical services shall provide or have access to disinfecting facilities for the cleaning and disinfecting of emergency medical equipment.

5.7.1.1 Medical equipment shall be disinfected at a fire station only where a disinfecting facility that meets the requirements of Section 5.7 is provided.

5.7.1.2 Disinfection shall not be conducted in fire station kitchen, living, sleeping, or personal hygiene areas.

5.7.2 Disinfecting facilities in fire stations shall meet the following requirements:

- (1) They shall be lighted.
- (2) They shall be vented to the outside environment.
- (3) They shall be fitted with floor drains connected to a sanitary sewer system or septic system.
- (4) They shall be designed to prevent contamination of other fire station areas.

5.7.3 Disinfecting facilities shall be equipped with racks or shelving to drip-dry cleaned equipment.

5.7.3.1 Racks or shelving shall be of nonporous material.

5.7.3.2 All drainage from the racks or shelving shall run into a sink or drainage pan that empties directly into a sanitary sewer system or septic system.

5.7.4* Where the cleaning of protective ensembles and contaminated station/work uniforms is conducted in fire stations, the fire department shall provide at least one washing machine and clothes dryer for the dedicated purpose of cleaning protective ensembles, contaminated station/work uniforms, and other contaminated clothing.

5.7.4.1 The washer and dryer shall be located in the designated cleaning area.

5.7.4.2 Noncontaminated clothing and laundry shall not be washed in the machine(s) used for cleaning protective ensembles and contaminated station/work uniforms or contaminated clothing.

5.7.5 If the fire department allows the washing of noncontaminated laundry, including bedding, in the fire station, a separate washer/dryer shall be available for that purpose and located in an area that is remote from the designated cleaning area required by 5.7.1.

5.8 Disposal Areas.

5.8.1 Medical waste or other regulated waste shall be disposed of in a designated disposal area.

5.8.2 Medical waste or other regulated waste shall not be disposed of in fire station kitchen, living, sleeping, or personal hygiene areas.

5.8.3 The designated disposal area shall be physically separate from areas used for the following:

- (1) Food preparation
- (2) Cleaning of food and cooking utensils
- (3) Personal hygiene
- (4) Sleeping
- (5) Living

5.8.4 The designated disposal area shall be physically separate from the designated cleaning area and the disinfecting facility.

5.8.5 The designated disposal area shall be secured and labeled.

5.8.6 The designated disposal area and the handling, storage, transportation, and disposal of medical waste or other regulated waste shall comply with all applicable state, provincial, and local laws and regulations.

Chapter 6 Infection Control for Fire Department Emergency Vehicles (NFPA 1581)

6.1 General.

6.1.1* All fire department vehicles involved in providing any level of emergency medical services (EMS) shall comply with health and infection control laws and regulations.

6.1.2 All fire department vehicles shall be cleaned and disinfected on a routine basis, as established by the AHJ, and following exposure to a potentially infectious incident.

6.1.3 At a minimum, waterless cleansers, antiseptic wipes, alcohol, or other skin cleaning agents shall be available on the vehicle.

6.2 Vehicles Used to Transport Patients. The provisions of Section 6.2 shall apply to all fire department vehicles including, but not limited to, rescue vehicles, ambulances, and nonemergency vehicles that are used to transport patients to or from hospitals or other health care facilities.

6.2.1 All engineering controls directed toward infection control in vehicles used to transport patients shall meet the requirements specified in NFPA 1900.

6.2.2 Engineering controls shall be used to augment but not to replace safe infection control training and practices and appropriate personal protective clothing and equipment, as outlined in this standard and in relevant state, provincial, or federal regulations.

6.2.3* Ventilation.

6.2.3.1 Ventilation systems shall provide complete ambient air exchanges in both driver and patient compartments at least every 2 minutes when the vehicle is stationary.

6.2.3.2 When the vehicle is stationary, ventilation systems shall provide complete ambient air exchanges in both driver and patient compartments.

6.2.4* Ambient Air Filtration. To prevent airborne pathogen exposure, fire department vehicles used to transport patients

shall have properly fitted, high-efficiency particle (HEPA) filters integrated into the heating and air-conditioning system.

6.2.5* Vehicle Interior Surfaces. The interiors of fire department vehicles used to transport patients shall meet or exceed the requirements of NFPA 1900 and be free of all sharp projections, and the material in the interior shall be physically and chemically inert to detergents and other solvents or solutions used for cleaning and disinfecting.

Chapter 7 Infection Control Protection for Emergency Medical Service Operations (NFPA 1581)

7.1 Personnel.

7.1.1 Prior to any contacts with patients, members shall cover all areas of abraded, lacerated, chapped, irritated, or otherwise damaged skin with adhesive dressings.

7.1.2* Any member who has skin or mucosal contact with body fluids shall thoroughly wash the exposed area immediately using water or saline on mucosal surfaces and liquid soap and running water on skin surfaces.

7.1.3 If soap and running water are not available, waterless cleansers, antiseptic wipes, alcohol, or other skin cleaning agents that do not need running water shall be used until liquid soap and running water are obtained.

7.1.4 After removal of any PPE, including gloves, all members shall wash their hands immediately or as soon as feasible.

7.1.5* The infection control officer shall consult with the fire department physician regarding the need for restrictions for members with infectious diseases who present a risk of transmitting their infections to other members of the fire service or the general public.

7.2 Personal Protective Equipment.

7.2.1 Members providing any emergency medical services shall don medical gloves prior to initiating such care to protect against the variety of diseases, modes of transmission, and unpredictable nature of the work environment.

7.2.1.1 Medical gloves shall be a standard component of emergency response equipment.

7.2.1.2 Latex-free or powder-free medical gloves shall be provided for members with a latex allergy or for members providing care for a patient with a latex allergy.

7.2.2 Medical gloves shall be removed as soon as possible after the termination of patient care, taking care to avoid skin contact with the glove's exterior surface, and shall be disposed of in accordance with 8.5.5.

7.2.3 Hands shall be washed as specified in Section 8.1 following removal of medical gloves.

7.2.4 All PPE used while providing emergency medical service shall meet the requirements of NFPA 1999 and shall be donned prior to beginning any emergency medical service.

7.2.5 PPE used while providing emergency medical services, including air purifying respirators (e.g., N-95 or better), masks, splash-resistant eyewear, medical gloves, and fluid-resistant clothing, shall be present on all fire department vehicles that support emergency medical service operations.

7.2.5.1 NIOSH-approved respirators, FDA-cleared medical masks, barrier face coverings (source control devices), splash-resistant eyewear, and fluid-resistant clothing shall be used by members providing treatment during situations involving spurring blood, trauma, or childbirth, or other situations where direct contamination is anticipated or possible.

7.2.5.2* Appropriate respiratory protection shall be used during situations involving potential exposure to airborne pathogens.

7.2.5.3* During potentially contagious disease incidents, barrier face coverings (source control devices) or face shields shall be used on the patient if safety permits.

7.2.5.4 During potentially contagious disease incidents, barrier face coverings (source control devices) shall be used by the member during nonpatient interactions. (*See A.7.2.5.3.*)

7.2.6 Resuscitation equipment, including pocket masks or bag valve masks, shall be used as a barrier device while performing airway management.

7.2.7* Medical gloves shall not be worn under structural fire-fighting gloves.

7.2.8 Disposable cleaning gloves, splash-resistant eyewear, and fluid-resistant clothing shall be worn by members during cleaning or disinfecting of clothing or equipment potentially contaminated during emergency medical service operations.

7.3 Handling of Sharp Objects.

7.3.1 All members shall take precautions during procedures to prevent injury or exposure while using needles, scalpel blades, and other sharp instruments or devices.

7.3.2 Except for those that are automatic or self-sheathing, needles shall not be manually recapped, bent, or broken.

7.3.3 Following use, all sharp objects shall be placed immediately in sharps containers.

7.3.4 Sharps containers shall be located in all patient transport vehicles and shall be readily available in such items as drug boxes, trauma kits, and IV kits.

7.3.5 All sharps disposal containers shall be compliant with the following:

- (1) NIOSH Publication No. 97-111, *Selecting, Evaluating, and Using Sharps Disposal Containers*
- (2) OSHA Bloodborne Pathogens Standard (29 CFR Part 1910.1030)

Chapter 8 Infection Control Cleaning, Disinfecting, and Disposal (1581)

8.1 Skin Washing.

8.1.1 Hands shall be washed as follows:

- (1) After each emergency medical incident
- (2) Immediately or as soon as possible after removal of gloves or other PPE
- (3) After cleaning and disinfecting emergency medical equipment
- (4) After cleaning PPE
- (5) After any cleaning function
- (6) After using the bathroom

- (7) Before and after handling food or cooking and food utensils

8.1.2* Hands and contaminated skin surfaces shall be washed with nonabrasive liquid soap and water by lathering the skin and vigorously rubbing together all lathered surfaces for at least 20 seconds, followed by thorough rinsing under running water.

8.1.3 Where provision of handwashing facilities is not feasible, appropriate antiseptic hand cleansers in conjunction with clean cloth, paper towels, or antiseptic towelettes shall be used.

8.1.4 Where antiseptic hand cleaners or towelettes are used, hands shall be washed with nonabrasive soap and running water as soon as feasible.

8.2 Disinfectants.

8.2.1 All disinfectants shall be as follows:

- (1) Approved by and registered as tuberculocidal with the US Environmental Protection Agency (EPA)
- (2) Effective for the hazards likely to be encountered (e.g., C. difficile, coronavirus)
- (3) Used in accordance with the manufacturer's instructions for the material or equipment being disinfected

8.2.2 Care shall be taken in the use of all disinfectants.

8.2.2.1 Members shall be informed of the flammability and reactivity of disinfectants.

8.2.2.2 Members shall follow the disinfectant manufacturer's instructions.

8.2.2.3 Disinfectants shall be used only with ventilation and while wearing appropriate infection control garments and equipment, including, but not limited to, cleaning gloves, face protection devices, and aprons.

8.2.3 Disinfecting shall take place in the designated disinfecting facility as specified in Section 5.7.

8.3 Emergency Medical Equipment and Environmental Surfaces.

8.3.1 Where emergency medical equipment cleaning is performed by members, it shall take place in a designated disinfecting facility as specified in Section 5.7, and appropriate PPE shall be available, including the following:

- (1) Splash-resistant eyewear
- (2) Cleaning gloves
- (3) Fluid-resistant clothing
- (4) Respiratory protection, as appropriate

8.3.2 Dirty or contaminated emergency medical equipment shall not be cleaned or disinfected in fire station kitchen, living, sleeping, or personal hygiene areas.

8.3.3 Personal protective equipment shall be used wherever there is a potential for exposure to body fluids or potentially infectious material during cleaning or disinfecting.

8.3.4 Prior to cleaning and disinfecting, dirty or contaminated emergency medical equipment shall be stored separately from cleaned and disinfected emergency medical equipment.

8.3.5 Disinfectants meeting the requirements specified in 8.2.1 shall be used in accordance with the manufacturer's instructions with special attention to prescribed contact time.

8.3.6 Dirty or contaminated runoff from emergency medical equipment, environmental surfaces, and cleaning and disinfecting solutions shall be drained into a sanitary sewer system or septic system.

8.3.7 Emergency medical equipment, metal, and electronic equipment shall be cleaned in a manner appropriate for the equipment and then disinfected.

8.3.7.1 Only disinfectants that are chemically compatible with the equipment or the environmental surface to be disinfected and that meet the requirements specified in 8.2.1 shall be used.

8.3.8 Reusable emergency medical equipment that comes in contact with mucous membranes shall require cleaning and a high-level disinfection or sterilization in accordance with the medical equipment manufacturer's instructions after each use (*see Annex C*).

8.4 Clothing and Personal Protective Equipment.

8.4.1 Fire Department Role.

8.4.1.1* The fire department shall clean, launder, and dispose of personal protective equipment at no cost to the member.

8.4.1.2 The fire department also shall repair or replace personal protective equipment as needed to maintain its effectiveness, at no cost to the member.

8.4.2 If a garment(s) is penetrated by blood or other potentially infectious materials, the garment(s) shall be removed immediately or as soon as feasible.

8.4.3 All personal protective equipment shall be removed prior to leaving the work area.

8.4.4 Clothing that is contaminated with body fluids shall be placed in leakproof bags, sealed, and transported for cleaning or disposal.

8.4.5 Contaminated Clothing.

8.4.5.1 Cleaning or disinfecting of protective ensembles and contaminated station/work uniforms shall be performed by a cleaning service or at a fire department facility equipped to handle contaminated clothing.

8.4.5.2 The cleaning of contaminated PPE, station/work uniforms, or other clothing shall not be done at home.

8.4.6 Structural firefighting protective ensembles and the individual ensemble elements that include garments, helmets, gloves, footwear, and interface components shall be maintained, cleaned, and decontaminated in accordance with NFPA 1851. (*See also Annex C.*)

8.4.7 When a garment is contaminated, it shall be cleaned as soon as possible.

8.4.8 When PPE is removed, it shall be placed in a designated area or container for storage until cleaned or disposed of.

8.4.9 Self-contained breathing apparatus (SCBA) cleaning, maintenance, and care shall be in accordance with NFPA 1852.

8.4.9.1 Organizations in the United States shall also comply with 29 CFR 1910.134, "Respiratory Protection," Paragraph (h) Maintenance and Care of Respirators, and Appendix B-2, Respiratory Cleaning Procedures (Mandatory).

8.4.9.2 Organizations outside the United States shall also comply with all applicable national, state/provincial, and local regulations.

8.4.10* APR and SCBA Facepieces Exposed to Airborne and Liquidborne Pathogens.

8.4.10.1 Individuals involved in the cleaning and disinfection of air-purifying respirator (APR) and SCBA facepieces shall be trained in cleaning and disinfecting procedures in accordance with 8.4.10 and shall be familiar with the facepieces being cleaned and disinfected, including their inspection and assembly procedures.

8.4.10.2* Individuals handling contaminated APR and SCBA facepieces shall wear a minimum of a protective garment, gloves, goggles, and a respirator appropriate for the type of disinfectant and hazards associated with the respective airborne and liquidborne pathogens.

8.4.10.3* Where available, the specific instructions provided by the manufacturer shall be used for the cleaning and disinfection of APR and SCBA facepieces that have been exposed to airborne or liquidborne pathogens.

8.4.10.4* In the absence of specific cleaning and disinfection instructions, the procedures in 8.4.10.4.1 through 8.4.10.4.10.2 shall be used.

8.4.10.4.1 If filters or cartridges are present, the filters and cartridges shall be removed from the facepiece. Reusable filters or cartridges shall be cleaned as specified in 8.4.10.4.10.

8.4.10.4.2 Facepieces shall be further disassembled by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer.

8.4.10.4.3 The facepiece shall be washed in warm [43°C (110°F) maximum] water with a mild detergent or with a cleaning agent recommended by the manufacturer.

8.4.10.4.3.1 Use of a stiff bristle, not wire, brush shall be permitted to facilitate the removal of dirt.

8.4.10.4.4 Facepiece components shall be thoroughly rinsed in clean, warm [43°C (110°F) maximum], preferably running water.

8.4.10.4.4.1 If the rinsing is accomplished in a bucket or other vessel, the bucket or vessel shall be drained.

8.4.10.4.5* When the cleaning agent used does not contain a disinfecting agent, respirator components shall be immersed for 2 minutes in one of the following:

- (1) A hypochlorite solution (50 ppm chlorine) that is made by adding approximately 1 mL laundry bleach to 1 L water at 43°C (110°F).
- (2) An aqueous solution of iodine (50 ppm iodine) that is made by adding approximately 0.8 mL tincture of iodine (6 g to 8 g ammonium and/or potassium iodide/100 mL 45 percent alcohol) to 1 L water at 43°C (110°F).
- (3)* Other commercially available cleaning agents of equivalent disinfectant quality used as directed in terms of its concentration, application, and dwell time, if their use is recommended or approved by the respirator manufacturer; where possible, EPA-registered disinfectants shall be used that are specific to the pathogens involved.

8.4.10.4.6 Following disinfection, facepiece components shall be thoroughly rinsed in clean, warm [43°C (110°F) maximum], preferably running water.

8.4.10.4.6.1 If the rinsing is accomplished in a bucket or other vessel, the bucket or vessel shall be drained.

8.4.10.4.7* Facepiece components shall be hand-dried with a clean, lint-free cloth or air-dried.

8.4.10.4.8 The facepiece shall be reassembled, replacing filters, cartridges, and canisters in accordance with manufacturer's instructions, where necessary.

8.4.10.4.9 The respirator shall be inspected in accordance with the manufacturer's instructions to ensure that all components work properly and any damaged or defective components shall either be repaired or replaced.

8.4.10.4.10* The outside of any filters or cartridges to be reused shall be wiped down with a disinfectant wipe and then allowed to air dry.

8.4.10.4.10.1 The filter media shall not be wetted or exposed to liquid disinfectant.

8.4.10.4.10.2 Any filter or cartridge that has been soiled, contaminated, or clogged shall be replaced.

8.5* Disposal of Materials.

8.5.1 Sharps containers shall be disposed of in accordance with applicable federal, state, provincial, and local regulations.

8.5.2 Contaminated sharps shall be discarded immediately or as soon as feasible in containers meeting the OSHA Blood-borne Pathogens Standard (29 CFR Part 1910.1030) for the following features:

- (1) Closable
- (2) Puncture-resistant
- (3) Leakproof on sides and bottom
- (4) Labeled or color-coded in accordance with Section 8.8

8.5.2.1 In addition, the container shall be designed to ensure the following:

- (1) Only one sharp can be disposed of at a time.
- (2) A hand cannot enter the container.
- (3) The container remains closed when not in use.
- (4) The container retains the contents during transport for disposal.

8.5.3 During use, containers for contaminated sharps shall meet the following requirements:

- (1) They shall be accessible to personnel.
- (2) They shall be located as close as is feasible to the immediate area where sharps are used or anticipated to be found.
- (3) They shall be maintained upright throughout use.
- (4) They shall be replaced before reaching $\frac{3}{4}$ full.

8.5.4 Moving Containers.

8.5.4.1 When moving containers of contaminated sharps from the area of use, the containers shall be closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

8.5.4.2 Sharps containers shall be placed in a secondary container if leakage is possible.

8.5.5 The following shall be placed in leakproof bags, sealed, and disposed of as medical waste:

- (1) Contaminated disposable medical supplies and equipment
- (2) Contaminated disposable PPE
- (3) Contaminated wastes

8.5.6 Noncontaminated Waste Collection.

8.5.6.1 Noncontaminated disposable medical supplies and equipment, noncontaminated disposable PPE, and noncontaminated wastes shall be permitted to be collected in closable waste containers and shall be disposed of.

8.5.6.2 Such waste collection containers shall not be located in any fire station kitchen, living, or sleeping area.

8.5.7 Where it has been determined by the infection control officer that it is not possible for nondisposable items to be disinfected, they shall be placed in leakproof bags, sealed, and disposed of as medical waste.

8.6 Linen.

8.6.1 Contaminated laundry shall be handled as little as possible and with a minimum of agitation.

8.6.2 Contaminated laundry shall be bagged or put into containers at the location where used and shall not be sorted or rinsed at the location of use.

8.6.3 Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with Section 8.8.

8.6.4 Wherever contaminated laundry is wet and presents a reasonable likelihood of soaking through or leaking from the bag or container, the laundry shall be placed and transported in bags or containers that prevent soak-through or leakage, or both, of fluids to the exterior.

8.6.5 The employer shall ensure that employees who have contact with contaminated laundry wear PPE commensurate with the risk.

8.7 Housekeeping.

8.7.1 Fire Department Role.

8.7.1.1 The fire department shall ensure that the worksite is maintained in a clean and sanitary condition.

8.7.1.2 The fire department shall determine and implement a written schedule for cleaning and method of decontamination based on the following:

- (1) Location within the facility
- (2) Type of surface to be cleaned
- (3) Type of soil present
- (4) Tasks or procedures performed

8.7.2* After contact with blood or other potentially infectious materials, equipment and environmental and working surfaces shall be cleaned and decontaminated using any cleaner or disinfectant agent intended for environmental use.

8.7.3 Contaminated work surfaces shall be decontaminated with a disinfectant at the following times:

- (1) After completion of an incident involving emergency medical service operations
- (2) Immediately or as soon as feasible where surfaces are overtly contaminated
- (3) Immediately after any spill of blood or other potentially infectious materials
- (4) At the end of the workshift if the surface was possibly contaminated since the last cleaning

8.7.4 All bins, pails, cans, and similar receptacles intended for reuse that have a reasonable likelihood of becoming contaminated with blood or other potentially infectious materials shall be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

8.8 Labeling.

8.8.1 Warning labels shall be affixed to containers of regulated waste and other containers used to store, transport, or ship blood or other potentially infectious materials, such as sharps.

8.8.2 Labels required by Section 8.8 shall include the symbol shown in Figure 8.8.2.

8.8.3 The labels shall be fluorescent orange or orange-red, or predominantly so, with lettering or symbols in a contrasting color.

8.8.4 The labels required shall be affixed as closely as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

8.8.5 The use of red bags or red containers shall be permitted to be substituted for the use of labels.

8.8.6 Labels required for contaminated equipment shall specify which portions of the equipment remain contaminated.

8.8.7 Regulated waste that has been decontaminated shall not be required to be labeled or color-coded.



FIGURE 8.8.2 Department of Transportation (DOT) Symbol for Biohazards.

Chapter 9 Occupational Medical: Roles and Responsibilities (NFPA 1582)

9.1 Administration.

9.1.1 Scope. Chapters 9 through 13 contain descriptive requirements for a comprehensive occupational medical program for fire departments.

9.1.1.1* The medical requirements in Chapters 9 through 13 are applicable to fire department candidates and members whose duties as defined by the authority having jurisdiction (AHJ) are outlined in NFPA 1010, NFPA 1006, NFPA 1021, and NFPA 1140.

9.1.1.2 Chapters 9 through 13 provide information and guidance for physicians and other health care providers responsible for fire department occupational medical programs.

9.1.1.3* The requirements in Chapters 9 through 13 are applicable to public, governmental, military, private, and industrial fire department organizations providing rescue, fire suppression, hazardous materials mitigation, special operations, and other emergency services.

9.1.1.4 Chapters 9 through 13 shall not apply to facility fire brigades that also can be known as emergency brigades, emergency response teams, fire teams, plant emergency organizations, or mine emergency response teams.

9.1.2 Purpose. The purpose of Chapters 9 through 13 is to outline an occupational medical program that, when implemented in a fire department, will reduce the risk and burden of fire service occupational morbidity and mortality while improving the health, and thus the safety and effectiveness, of firefighters operating to protect members of the public's life and property.

9.1.2.1 Chapters 9 through 13 specify the following information:

- (1) Minimal medical requirements for individuals
- (2) Occupational medical, behavioral health, and physical fitness evaluations for individuals
- (3)* Information regarding fire department activities and essential job tasks that assist the department physician in providing proper medical, behavioral health, and physical fitness support for individuals
- (4) Methods and types of data that must be collected to sustain comprehensive occupational medical programs for fire departments

9.1.2.2* The implementation of the medical requirements outlined in Chapters 9 through 13 ensures that individuals are medically capable of performing their required duties and will reduce the risk of occupational injuries and illnesses.

9.1.2.3 Nothing herein is intended to restrict any jurisdiction from exceeding these minimum requirements.

9.1.3 Implementation.

9.1.3.1 The medical requirements of Chapters 9 through 13 shall be implemented when this standard is adopted by an AHJ on an effective date specified by the AHJ.

9.1.3.2* When Chapters 9 through 13 are adopted by a jurisdiction, date(s) shall be set for individuals to achieve compliance by establishing a phase-in schedule for compliance with specific requirements, if needed.

9.1.3.3* The fire department risk management plan as described in NFPA 1550 shall include implementation of a comprehensive occupational medical program that is compliant with Chapters 9 through 13.

9.2 Fire Department Responsibilities.

9.2.1 The fire department shall establish a comprehensive occupational medical program that includes medical evaluations for candidates and members. (*See Annex D.*)

9.2.2 The medical evaluations and any additional medical tests ordered by the fire department physician shall be provided at no cost to the members.

9.2.2.1* This obligation shall not extend to medical tests beyond the basic medical evaluation for candidates.

9.2.3 The fire department shall be responsible for making decisions about hiring, disqualifying, restricting, and determining reasonable accommodations.

9.2.4* The fire department shall have an officially designated physician who shall be responsible for guiding, directing, and advising the members with regard to their health, fitness, and suitability for duty as required by NFPA 1550.

9.2.5* The fire department shall ensure that the fire department physician is a licensed doctor of medicine or osteopathy who has completed residency training in an accredited medical training program and/or is American Boards of Medical Specialties (ABMS) or American Osteopathic Association (AOA) board certified or international equivalent.

9.2.6* The fire department shall provide the fire department physician with a fire service overview, current job descriptions, and the essential job tasks required for all fire department positions and ranks.

9.2.7 The fire department shall provide the fire department physician with the department's organizational statement that outlines types and levels of services provided by the department, in accordance with NFPA 1550.

9.2.8 For the purpose of conducting medical evaluations, the fire department shall assist the fire department physician to understand the physiological and psychological demands placed on members as well as the environmental conditions under which they must perform and the personal protective equipment (PPE) they must wear during various types of emergency operations.

9.2.9 The fire department shall ensure member access to evaluation by medical specialists, medical and/or surgical treatment, rehabilitation, and any other intervention prescribed by a medical provider, in consultation with the fire department physician, following an injury or illness resulting from a member's participation in fire department functions.

9.2.10 The fire department shall require that the fire department health and safety officer and the health and fitness coordinator maintain a liaison relationship with the fire department physician to ensure that all aspects of the comprehensive occupational medical program are actively engaged.

9.2.11 The fire department shall ensure employee privacy and confidentiality regarding medical conditions identified during the medical evaluation except as required by law.

9.2.12 Where possible, the fire department shall provide alternate duty position for members when the fire department physician recommends temporary work restrictions.

9.2.13 Medical Record Keeping.

9.2.13.1* The fire department comprehensive occupational medical program shall include collection and maintenance of a confidential medical and health information system for members.

9.2.13.2 All medical record keeping shall comply with the requirements of 29 CFR 1910.1020, "Access to employee exposure and medical records," and other applicable regulations and laws.

9.2.14 The provisions of 9.2.13 shall apply to all health and medical records regarding individual members and to all methods of communicating or transferring the information contained in these records, including written, oral, electronic, and any other means of communication.

9.3 Fire Department Physician Responsibilities.

9.3.1 The fire department physician shall fulfill the following responsibilities:

- (1) Be familiar with the requirements of Chapters 1 through 3; 9 through 13; and Annexes A, D, E, F, G, and K related to a fire department's comprehensive occupational medical program
- (2) Understand and be familiar with local, state, and federal legal requirements related to the medical evaluation
- (3) Understand the physiological, psychological, and environmental demands placed on firefighters
- (4) Evaluate individuals to identify medical conditions that could affect their ability to safely respond to and participate in emergency operations
- (5) Use the essential job task descriptions supplied by the fire department to determine an individual's medical certification
- (6) Identify and report job restrictions associated with any essential job tasks that cannot be safely and effectively performed by the individual due to a medical condition(s) or physical fitness
- (7) Inform the fire chief or his/her designee whether or not the individual is medically certified to safely perform the essential job tasks
- (8) Report the results of the medical evaluation to the individual, including any medical condition(s) identified during the medical evaluation, and the recommendation as to whether the individual is medically certified to safely perform the essential job tasks
- (9) Forward copies of any abnormal results along with patient instructions regarding primary care follow-up to individuals who were instructed to seek (as appropriate) medical follow-up to address any medical conditions, or lab abnormalities, identified during the medical evaluation
- (10) In collaboration with the department's health and fitness coordinator, review the design, methods, and results of the annual occupational fitness evaluation as described in Chapter 12

- (11) Provide or arrange for a prescriptive rehabilitation and/or fitness program when indicated to aid a member's recovery from illness or injury and to improve a member's fitness so as to enhance his/her ability to safely and effectively perform essential job tasks
- (12) Be aware of and promote injury prevention and health promotion programs for firefighters

9.3.2 When medical evaluations are conducted by a physician or medical provider other than the fire department physician, the evaluation shall be reviewed and approved by the fire department physician.

9.3.3 The fire department physician shall review individual medical evaluations and aggregate data from member evaluations in order to detect evidence of occupational exposure(s) or clusters of occupational disease.

9.3.4 The fire department physician shall be a member of the Fire Department Occupational Safety and Health Committee chaired by the health and safety officer as required by NFPA 1550.

9.3.5 The fire department physician shall provide medical supervision for the fire department fitness, return-to-duty rehabilitation, and physical conditioning programs as required by Chapters 9 through 13.

9.3.6* The fire department physician shall ensure adequate on-scene medical support at the incident scene rehabilitation sector for members during emergency operations as required by NFPA 1550, and Chapters 9 through 13.

9.3.7 The fire department physician shall provide supervision for the fire department infection control program as required by Chapters 9 through 13.

9.4 Individual Responsibilities. Each individual shall adhere to the following requirements:

- (1) Cooperate, participate, and comply with the medical evaluation process
- (2) Provide complete and accurate information to the fire department physician and other authorized medical care provider(s)
- (3) Report any occupational exposure such as exposure to hazardous materials or toxic substances and exposure to infectious or contagious diseases
- (4) Report to the fire department physician any medical condition that could interfere with the ability of the individual to safely perform essential job tasks, such as illness or injury, use of prescription or nonprescription drugs, and pregnancy

9.5 Confidentiality of Medical Information.

9.5.1* Specific information concerning medical diagnosis shall be released by the fire department physician only with written permission from the individual and/or as required by law.

9.5.2 No fire department personnel, other than the fire department physician or appropriate medical staff, shall have access to another member's medical records without the express written consent of that member.

Chapter 10 Occupational Medical: Essential Job Tasks (NFPA 1582)

10.1 Essential Job Tasks and Descriptions.

10.1.1 The fire department shall evaluate the following 15 essential job tasks against the types and levels of emergency services provided to the local community by the fire department, the types of structures and occupancies in the community, and the configuration of the fire department to determine which tasks apply to individuals:

- (1)* Wearing personal protective equipment (PPE) and self-contained breathing apparatus (SCBA) while performing firefighting tasks (e.g., hose line operations, extensive crawling, lifting and carrying heavy objects, ventilating roofs or walls using power or hand tools, forcible entry), rescue operations, and other emergency response actions under stressful conditions, including working in extremely hot or cold environments for prolonged time periods
- (2) Wearing the respirators required by the jurisdiction (e.g., N-95, half-face elastomeric, PAPR, SCBA), which includes a demand-valve-type positive-pressure facepiece or filter respirator, achieving a successful fit-test and tolerating increased respiratory workloads
- (3) Exposure to toxic fumes, irritants, particulates, biological (i.e., infectious) and nonbiological hazards, or heated gases, despite the use of PPE and SCBA
- (4) Climbing at least six flights of stairs or walking a similarly strenuous distance and incline in jurisdictions without tall buildings while wearing PPE and SCBA, commonly weighing 40–50 lb (18–23 kg) and carrying equipment/tools weighing an additional 20–40 lb (9–18 kg)
- (5) Wearing PPE and SCBA that is encapsulating and insulating, which will result in significant fluid loss that frequently progresses to clinical dehydration and can elevate core temperature to levels exceeding 102.2°F (39°C)
- (6) Working alone while wearing PPE and respirators required by the jurisdiction, searching, finding, and rescue-dragging or carrying victims to safety in hazardous conditions and low visibility
- (7) While wearing PPE and SCBA, advancing water-filled hose lines up to 1 ¾ in. (45 mm) in diameter from fire apparatus to occupancy [approximately 150 ft (50 m)], which can involve negotiating multiple flights of stairs, ladders, and other obstacles
- (8) While wearing PPE and SCBA, climbing ladders, operating from heights, walking or crawling in the dark along narrow and uneven surfaces that might be wet or icy, and operating in proximity to electrical power lines or other hazards
- (9) Unpredictable, prolonged periods of extreme physical exertion as required by emergency operations without benefit of a warm-up period, scheduled rest periods, meals, access to medication(s), or hydration
- (10) Operating fire apparatus or other vehicles in an emergency mode with emergency lights and sirens
- (11) Critical, time-sensitive, complex problem solving during physical exertion in stressful, hazardous environments, including hot, dark, tightly enclosed spaces, that is further aggravated by fatigue, flashing lights, sirens, and other distractions
- (12) Ability to communicate (i.e., give and comprehend written or verbal orders) while wearing PPE and respirators

required by the jurisdiction under conditions of high background noise, poor visibility, and drenching from hose lines or fixed protection systems (e.g., sprinklers)

- (13) Functioning as an integral component of a team, where sudden incapacitation of a member can result in mission failure or in risk of injury or death to members of the public or other team members
- (14) Working in shifts, including during nighttime, that can extend beyond 12 hours
- (15) Performing emergency medical service (EMS) tasks, such as cardiopulmonary resuscitation (CPR) or lifting or moving patients, while wearing PPE and respirators required by the jurisdiction

10.1.2 The fire department shall provide the fire department physician with the list of essential job tasks, as developed per 10.1.1, to be used in the medical evaluation of individuals.

10.1.3 The fire department physician shall consider the physical, physiological, intellectual, and psychological demands of the occupation when evaluating the individual's ability to perform the essential job tasks.

10.2 Essential Job Tasks for Specialized Teams.

10.2.1 If the fire department operates specialized teams such as hazardous materials units, self-contained underwater breathing apparatus (SCUBA) teams, technical rescue teams, emergency medical services (EMS) teams, or units supporting tactical law enforcement operations, the fire department shall identify for each team it operates the additional essential job tasks and specialized personal protective equipment (PPE) not specified in 10.1.1(1) through 10.1.1(15) that would apply to the individuals of that team.

10.2.2 The fire department shall also provide the fire department physician with the list of additional essential job tasks and specialized PPE specific to each specialized team.

10.2.3 When performing the medical evaluation of individuals of a specialized team, the fire department physician shall also consider the following:

- (1) Additional medical and/or physical requirements that are related to the job tasks being performed by the team that are not enumerated in this standard
- (2) The impact on individuals of having to wear or use specialized PPE that can increase weight, environmental isolation, sensory deprivation, and/or dehydration potential above levels experienced with standard fire suppression PPE

Chapter 11 Occupational Medical: Evaluation of Members (NFPA 1582)

11.1 General.

11.1.1 The fire department shall establish and maintain a confidential occupational medical evaluation program for members.

11.1.2 Occupational medical evaluations shall be conducted as a baseline for surveillance and annually thereafter.

11.1.3* An occupational medical evaluation shall be performed following a member's occupational exposure, illness, injury, or protracted absence from the job.

11.1.3.1 The scope of that evaluation shall be determined by the fire department physician after reviewing the type and severity of the condition.

11.1.4 The components of the medical evaluations shall conform to all applicable US OSHA standards, including 29 CFR 1910.120, "Hazardous waste operations and emergency response"; 29 CFR 1910.134, "Respiratory protection"; 29 CFR 1910.95, "Occupational noise exposure"; and 29 CFR 1910.1030, "Bloodborne pathogens."

11.2 Member Education Regarding Occupational Medical Evaluation Program.

11.2.1 The fire department, the fire department physician, and member organizations where they exist shall be responsible to convey the purposes and importance of the annual occupational medical evaluation to members and to the AHJ.

11.2.2 The purpose of the annual occupational medical evaluation of members shall include but cannot be limited to the following:

- (1) Identifying conditions that interfere with a member's physical or mental ability to safely perform essential job tasks without undue risk of harm to self or others
- (2) Monitoring the effects of exposure to specific biological, physical, or chemical agents on individual members
- (3) Detecting changes in a member's health that can be related to harmful working conditions
- (4) Detecting patterns of disease or injury occurrence in the workforce that could indicate underlying work-related problems
- (5)* Providing members with information about their current health, promoting wellness, and referring them for appropriate further evaluation and treatment
- (6) Providing members with information and education about occupational hazards
- (7) Providing a cost-effective investment in work-related disease prevention, early detection, and health promotion for members
- (8) Complying with federal, state, provincial, local, and/or other jurisdictional requirements

11.3 Timing of the Annual Occupational Medical Evaluation of Members.

11.3.1 All members shall receive a baseline medical evaluation after hiring and prior to performing firefighter emergency functions and at least annually thereafter.

11.3.2 The baseline medical evaluation shall include the components of the annual occupational medical evaluation not performed as part of the candidate medical evaluation, provided the candidate medical evaluation was performed within the past 12 months.

11.3.3 The annual evaluation shall be completed every 12 months (± 3 months).

11.3.4 Annual medical evaluations shall be compared to baseline and subsequent evaluations to identify clinically relevant changes.

11.3.5 The interval requirements for performance of the annual occupational medical evaluation shall not preclude more frequent medical evaluations of members for new or recurring conditions when requested by the member, fire department physician, or AHJ.

11.4 Components of the Annual Occupational Medical Evaluation of Members.

11.4.1 All components listed in Section 11.5 through Section 11.7 shall be included in the baseline and annual occupational medical evaluations of members.

11.4.2 It shall be acceptable for certain components of the annual occupational medical evaluation to be performed by a member's private physician, provided full results are forwarded in the required time frame to the fire department physician.

11.4.3 Each medical evaluation shall include a medical history, including exposure and behavioral health histories; physical examination; blood tests; urinalysis; vision tests; audiograms; spirometry; chest x-ray, as indicated; ECG; cancer screening, as indicated; and immunizations and infectious disease screening, as indicated.

11.4.4 Tests for illegal drugs shall not be performed as part of the annual medical evaluation.

11.5 Medical History.

11.5.1* A medical history questionnaire shall be completed by each member to provide baseline information with which to compare future medical concerns.

11.5.2 An annual medical history questionnaire, which includes changes in health status and known occupational exposures since the previous annual evaluation, shall be completed by each member to provide follow-up information.

11.5.3 Information on the questionnaire and interval concerns shall be reviewed with each member by the fire department physician or designated medical evaluator.

11.6 Physical Examination. The annual physical examination shall include each of the following components:

- (1) Vital signs [temperature, pulse, and respiratory rate, and blood pressure (BP)]
 - (a) BP shall be measured according to the recommendations of the *Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure* (JNC 7)
- (2) Head, eyes, ears, nose, and throat (HEENT)
- (3) Neck
- (4) Cardiovascular
- (5) Pulmonary
- (6) Breast
- (7) Gastrointestinal with digital rectal exam as clinically indicated
- (8) Hernia
- (9) Lymph nodes
- (10) Neurological
- (11) Musculoskeletal
- (12)* Skin (includes screening for cancers)
- (13) Vision

11.7 Ancillary Tests.

11.7.1* Blood Tests. Blood tests shall be performed for fire-fighters, at minimum, every three years for those under the age of 40, and every year for those over the age of 40, and shall include the following:

- (1) CBC with differential, RBC indices and morphology, and platelet count
- (2) Electrolytes (Na, K, Cl, HCO₃, or CO₂)

- (3) Renal function (BUN, creatinine)
- (4) Glucose
- (5) Liver function tests (ALT, AST, direct and indirect bilirubin, alkaline phosphatase)
- (6) Total cholesterol, HDL, LDL, clinically useful lipid ratios (e.g., percent LDL), and triglycerides

11.7.2 Urine Laboratory Tests. The urine laboratory tests required shall include the following:

- (1) Dipstick analysis for glucose, ketones, leukocyte esterase, protein, blood, and bilirubin
- (2) Microscopic analysis for RBC, WBC, casts, and crystals if indicated by results of dipstick analysis
- (3) Analysis for occupational chemical exposure if indicated

11.7.3* Audiology. Hearing thresholds shall be assessed annually in each ear at each of the following frequencies:

- (1) 500 Hz
- (2) 1000 Hz
- (3) 2000 Hz
- (4) 3000 Hz
- (5) 4000 Hz
- (6) 6000 Hz
- (7) 8000 Hz

11.7.3.1 The fire department physician or other qualified medical evaluator shall compare audiogram results obtained during yearly evaluations with baseline and subsequent test results.

11.7.3.2 Standard threshold shifts shall be corrected for age as permitted by OSHA.

11.7.4 Spirometry.

11.7.4.1* Pulmonary function testing (spirometry) shall be conducted annually to measure the member's forced vital capacity (FVC), forced expiratory volume in 1 second (FEV₁), and the absolute FEV₁/FVC ratio.

11.7.4.2 The fire department physician or other qualified medical evaluator shall compare spirometry results obtained during yearly evaluations with baseline and subsequent test results.

11.7.4.3* FEV₁ and FVC results shall be expressed as the absolute value (liters or milliliters) and as percent predicted adjusted for gender, age, height, and ethnicity using NHANES III normative equations.

11.7.5 Chest Radiographs.

11.7.5.1 Chest x-rays shall include an initial baseline and shall be repeated as medically indicated.

11.7.5.2 The fire department physician or other qualified medical evaluator shall compare any chest radiographs with baseline and subsequent radiographs.

11.7.6 Electrocardiograms (ECGs).

11.7.6.1 A resting 12-lead ECG shall be performed as part of the baseline medical evaluation and shall be performed annually after age 40 or as clinically indicated.

11.7.6.2 The fire department physician or other qualified medical evaluator shall compare baseline and subsequent ECGs.

11.7.6.3 The fire department physician or other qualified medical evaluator shall compare baseline and subsequent stress tests, when available, to identify clinically relevant changes.

11.7.7 Risk Stratification.

11.7.7.1 Asymptomatic firefighters 40 years of age or older with no known atherosclerotic cardiovascular disease (ASCVD) shall be assessed annually for their 2-year or 10-year risks of ASCVD, defined as coronary death, nonfatal myocardial infarction, or fatal or nonfatal stroke.

11.7.7.2 Asymptomatic firefighters younger than 40 years of age known to be at high risk for ASCVD shall be assessed for coronary artery disease.

11.7.7.3 The 2-year Framingham risk tables or the 10-year heart risk calculator created by the American College of Cardiology/American Heart Association (ACC/AHA) shall be used to generate a 2-year or 10-year risk of ASCVD, taking into consideration the individual's age, sex, race, total cholesterol, high-density lipoprotein (HDL) cholesterol, systolic blood pressure, blood-pressure-lowering medication use, diabetes status, and smoking status.

11.7.7.3.1 Those members assessed as being at an ASCVD risk of ≥ 2 percent over the next 2 years or ≥ 5 percent over the next 10 years shall be counseled on risk factor reduction and referred to their PCP for risk factor reduction options.

11.7.7.3.1.1* Those members assessed as being at 2–4 percent ASCVD over the next 2 years or 10 to <20 percent risk of ASCVD over the next 10 years shall be further evaluated using symptom-limiting exercise stress testing (EST) with imaging [e.g., echocardiography, technetium (^{99m}Tc) sestamibi study] to at least the adjusted minimum threshold level of aerobic capacity (in METs) corresponding to the 35th percentile of cardiorespiratory fitness for the general population, based on age and biological sex.

11.7.7.3.1.2 Negative ESTs shall be repeated at least every 2 to 5 years or as clinically indicated.

11.7.7.3.1.3 Positive ESTs shall be referred to a cardiologist for further evaluation and treatment.

11.7.7.3.2 Those members assessed as being at 4 percent risk of ASCVD over the next 2 years or 20 percent or higher risk of ASCVD over the next 10 years shall be referred to a cardiologist for further evaluation and treatment.

11.7.8 Mammography.

11.7.8.1 Mammography shall be performed on each female member bi-annually for those over the age of 40 and annually for those over the age 50 or as clinically indicated.

11.7.8.2 A qualified radiologist shall compare mammograms to prior mammograms.

11.7.8.3 The fire department physician shall compare mammography reports to prior reports.

11.7.9 Immunizations and Infectious Disease Screening. The following infectious disease immunizations or infectious disease screenings shall be provided, as indicated:

- (1)* Tuberculosis (TB) screening—baseline, by either tuberculin skin testing using the tuberculin purified protein derivative (PPD) or the tuberculin blood test (i.e., interferon gamma release assay); subsequent tuberculosis

screening to be performed annually or at a frequency according to CDC guidelines unless the member has history of a positive tuberculin screening test, in which case CDC guidelines for management and subsequent chest radiographic surveillance apply

- (2) Hepatitis C virus screening—baseline, following occupational exposure, and if requested by the fire department physician or member
- (3) Hepatitis B virus vaccinations and titers—as specified in CDC guidelines; laboratory confirmation of immunity to be tested 1–2 months after completion of the vaccination 3 dose series
- (4)* Tetanus/diphtheria (Td) or Tetanus/diphtheria/pertussis (Tdap) vaccine—Tdap vaccine should be given once to replace the one Td booster which is given every 10 years or the 5-year wound management Td dose
- (5)* Measles, mumps, rubella vaccine (MMR)—in absence of documented immunity, two doses of MMR to be administered according to current immunization guidelines
- (6) Polio vaccine—a single booster of IPV for members traveling to endemic areas in the line of duty, or as outlined in the *Morbidity and Mortality Weekly Report* article, “Polio-myelitis Prevention in the United States: Updated Recommendations of the Advisory Committee on Immunization Practices (ACIP)”
- (7) Hepatitis A vaccine offered to high-risk personnel [HAZMAT, USAR, and SCUBA] and other personnel with frequent exposure to contaminated water
- (8) Varicella vaccine—offered to all non-immune personnel
- (9) Influenza vaccine — offered to all personnel annually unless required by state or local regulations
- (10) HIV screening—baseline, following occupational exposure, and if requested by the fire department physician or member

11.7.9.1 Prescreening and immunization against biological threat agents shall be made available to members following CDC guidelines or recommendations.

11.7.9.2* All members shall be offered immunizations against infectious diseases as required by the AHJ and by 29 CFR 1910.1030, “Bloodborne Pathogens.”

11.7.9.3 The fire department physician shall ensure that all members are offered currently recommended immunizations.

11.7.10 Post-Exposure Bloodborne Pathogen Testing.

11.7.10.1 Physicians who care for members shall follow current CDC recommendations for post-exposure prophylaxis (PEP) for bloodborne pathogen (BBP) exposures.

11.7.10.2* There shall be a written protocol for members who present with BBP exposures.

11.7.11 HIV Testing. HIV testing shall be offered on a confidential basis as part of post-exposure protocols and as requested by the fire department physician or member.

11.7.11.1 All results from HIV tests shall be provided directly to the member and shall be maintained by the physician as confidential documents.

11.7.11.2 Results from HIV tests shall not be forwarded to any local, state, provincial, national, or international authorities or databases unless mandated by public health statutes.

11.7.12 Heavy Metal Evaluation.

11.7.12.1 Baseline testing for heavy metals shall be required when indicated by known exposure or substantial risk.

11.7.12.2 Evaluations shall be performed following known exposures, for recurrent exposures, or where required under federal, state, or provincial regulations.

11.7.13 Colon Cancer Screening.

11.7.13.1* Stool-based blood testing risks and benefits shall be discussed with all members above the age of 40, or earlier if clinically indicated.

11.7.13.2* Visual exams (e.g., colonoscopy, CT colonoscopy, or flexible sigmoidoscopy) or stool-based testing shall be recommended to all members ages 45 to 75, or earlier if clinically indicated and repeated at regular intervals.

11.7.14* Prostate Cancer.

11.7.14.1 Due to increased prostate cancer risk, the fire department physician shall discuss the risks and benefits of prostate cancer screening, including prostate-specific antigen (PSA) testing, with all male firefighters beginning at age 50 and annually thereafter.

11.7.14.2 For firefighters who are at a higher risk for prostate cancer (e.g., African-Americans or where one or more first-degree relatives have been diagnosed with prostate cancer at an early age), the physician shall discuss the risks and benefits of prostate cancer screening, including PSA testing, beginning at age 40 and annually thereafter.

11.7.15 Lung Cancer Screening.

11.7.15.1 Low-dose computed tomography (LDCT) shall be performed annually on firefighters ages 50–74 who have at least a 20-pack-per-year smoking history and currently smoke or have quit within the past 15 years.

11.7.15.2 Screening shall be discontinued once a firefighter has not smoked cigarettes for 15 years or is too ill to benefit.

11.7.16 Cervical Cancer Screening. Female firefighters shall be screened for cervical cancer with cytology (i.e., Pap smear) every 3 years from ages 21 to 65 or, for firefighters who want to lengthen the screening interval, with high-risk human papillomavirus (HPV) testing with or without cytology every 5 years.

11.7.17 Testicular Cancer Screening.

11.7.17.1 A baseline examination shall be performed by a health care provider.

11.7.18 Bladder Cancer Screening.

11.7.18.1 Urine shall be evaluated for blood (hematuria).

11.7.18.2 A positive dipstick for hematuria shall require a follow-up and referral which could involve upper tract imaging, cystoscopy, and/or urine cytology.

11.7.19 Oral Cancer Screening.

11.7.19.1 The entire mouth shall be examined for signs of oral and oropharyngeal cancers.

11.7.20 Thyroid Cancer Screening.

11.7.20.1 Physical exam for palpable nodules shall be part of the annual physical examination.

11.7.21 Skin Cancer Screening. Physical exam of a member's skin shall be conducted annually for evidence of cancer.

11.7.22 Sleep Disturbance Screening.

11.7.22.1 Screening for sleep disorders using a validated questionnaire, such as the Berlin Questionnaire or Epworth Sleepiness Scale, shall be provided annually.

11.7.22.2* For firefighters with a high index of suspicion for a sleep disorder based on questionnaires or biometric data, the physician shall discuss the risks and benefits of testing and treatment.

11.7.23* Cancer and Cardiovascular Disease Risk Reduction.

11.7.23.1 The fire department physician shall annually inform members of the heightened risks of cardiovascular disease and various types of cancer associated with firefighting.

11.7.23.2 In addition to medical screening for these entities as outlined in this standard, the member shall be apprised of occupational routes of hazardous exposures related to firefighting, as well as common signs, symptoms, and preventive measures for both cardiovascular disease and cancers.

11.7.24 Occupational Stress Awareness Consultation.

11.7.24.1 The fire department physician shall, during the annual physical, inform the member of, and assess for the heightened risks of, stress associated with occupational exposures related to firefighting.

11.7.24.2 The fire department physician shall make the member aware of common adverse signs and symptoms of occupational stress, inform the member of practices that might limit the damaging effects of occupational stress, and provide the member with referral to licensed behavioral health specialists trained to recognize and treat stress-related disorders in first responders as indicated.

11.7.25 Hormone Imbalance Awareness Consultation. During the annual physical, the fire department physician shall inform the member of the heightened risks of certain hormone therapy, such as testosterone therapy in male members, that can have adverse effects on a member's health.

11.7.26 Behavioral Health Screening.

11.7.26.1* The fire department physician or qualified health-care provider shall, in advance of or during the annual physical, provide behavioral health screening for posttraumatic stress disorder (PTSD), major depressive disorder, active suicidality, and substance-use disorder.

11.7.26.1.1 Prior to conducting screening, the fire department physician or qualified healthcare provider shall provide the member a written explanation of the purpose of behavioral health screening.

11.7.26.1.2 The behavioral health screening explanation shall state behavioral health screening is not intended to provide a diagnosis but to identify symptoms that might indicate a behavioral health risk and warrant further evaluation.

11.7.26.1.3 The behavioral health screening explanation shall state that screening results will be kept strictly confidential.

11.7.26.1.4 Behavioral health screening results shall not be used to remove a member from duty, unless the member

displays an imminent threat to the physical safety of self or others.

11.7.26.2 The fire department physician or qualified health-care provider shall use a validated screening instrument to screen for PTSD, major depressive disorder, active suicidality, and substance-use disorder. (*See Annex G.*)

11.7.26.3 Self-Screening.

11.7.26.3.1 An incumbent firefighter shall be provided with the selected screening instruments in self-administered format, where applicable, to complete prior to entering their annual physical exam.

11.7.26.3.2 Screening results shall be reviewed and interpreted by the department physician or qualified healthcare provider prior to or during the annual physical exam.

11.7.26.4 Referrals.

11.7.26.4.1 An incumbent firefighter who screens positively for PTSD, major depressive disorder, or substance-use disorder shall receive a referral to a qualified behavioral health care provider.

11.7.26.4.2 A fire department shall provide the fire department physician or qualified healthcare provider conducting the annual screening a referral list of three preferred behavioral health providers that was updated in the last six months.

11.7.26.5* An incumbent firefighter who displays a threat to their physical safety or the safety of others at the time of their annual examination shall be referred to a qualified behavioral health care provider or facility for an emergency psychiatric evaluation.

Chapter 12 Occupational Medical: Annual Fitness Evaluation of Members (NFPA 1582)

12.1 Weight and Body Composition.

12.1.1* Body weight shall be measured and recorded annually.

12.1.2 A body composition evaluation shall be conducted on personnel solely for the purpose of departmental health surveillance using one of the following:

- (1)* Circumferential measurements
- (2) Hydrostatic weighing or Bod-Pod
- (3)* Skinfold measurements
- (4) Bio impedance analysis

12.2 Annual Fitness Evaluation.

12.2.1 General.

12.2.1.1 All members shall receive a baseline fitness evaluation that is not punitive or competitive after hiring and prior to performing firefighter emergency functions and at least annually thereafter as part of an individualized program.

12.2.1.2 All component results of the fitness evaluation shall be used to establish an individual's baseline or be compared to the individual's previous assessments and measured against recognized standards or norms.

12.2.1.3* The fitness evaluation shall include a medical pre-evaluation procedure and the components in 12.2.2 and 12.2.3.

12.2.2* Aerobic Capacity.

12.2.2.1* An evaluation of aerobic capacity shall be performed to assess cardiorespiratory fitness after the medical pre-evaluation.

12.2.2.2* Testing shall be conducted with a maximal or submaximal protocol using an empirically validated measure of cardiorespiratory fitness.

12.2.2.3* For an individual whose cardiorespiratory fitness levels are above the 35th percentile but below the 50th percentile for the general population standardized by biological sex and age, the fire department physician shall require participation in a prescribed cardiorespiratory (aerobic) fitness program without job restrictions.

12.2.2.4* For an individual whose cardiorespiratory fitness falls below the 35th percentile for the general population standardized by biological sex and age the fire department physician shall do both of the following:

- (1) Recommend to the AHJ that the individual be restricted from performing essential job tasks 1, 2, 4, 5, 6, 7, 8, 9, and 13
- (2) Require the individual to participate in a prescribed cardiorespiratory (aerobic) fitness program

12.2.3* Strength, Endurance, and Mobility. The mandatory fitness evaluation shall also include an evaluation of muscular strength, endurance, and joint mobility.

Chapter 13 Occupational Medical: Evaluations (NFPA 1582)

13.1 Medical Evaluation. Occupational medical evaluations shall be conducted at baseline and annually thereafter.

13.1.1* The occupational medical evaluation shall be an individualized assessment of the individual's ability to safely and effectively perform the essential job tasks in accordance with Section 13.3.

13.1.2* The occupational medical evaluation shall include a medical history, examination, and any medical tests required to assess medical conditions that can affect an individual's ability to safely and effectively perform the essential job tasks.

13.1.3 The occupational medical evaluation shall include an assessment of and motivation for wellness and fitness necessary to safely and effectively perform the essential job tasks.

13.2 Medical Conditions Affecting Ability to Perform Essential Job Tasks. Following the occupational medical evaluation, any essential tasks that the individual is not able to safely and effectively perform shall be reported to the AHJ.

13.3 Essential Job Tasks of a Firefighter.

13.3.1 The fire department physician shall use the list of essential job tasks in 10.1.1 in evaluating the ability of an individual to safely and effectively perform each essential job task.

13.3.2 Only job tasks that are essential for the position description provided by the AHJ shall be used to determine the medical qualifications of the individual.

13.3.3 Special Teams.

13.3.3.1* In addition to the essential job tasks specified in Chapter 10, individuals of specialized teams, such as hazardous

materials units, dive teams, technical rescue teams, EMS teams, or units supporting tactical law enforcement operations, shall be evaluated for their ability to perform essential job tasks and wear specialized PPE related to the duties of those specialized teams.

13.3.3.2 Prior to an occupational medical evaluation of individuals of specialized teams, the AHJ shall provide both of the following to the fire department physician:

- (1) A list of any specialized essential job tasks associated with the specialized team
- (2) A description of the risks associated with the essential job tasks and specialized PPE, as well as any additional medical or physical requirements that are not enumerated in this standard, such as increased weight, environmental isolation, sensory deprivation, metabolic cost, or dehydration potential above levels experienced with standard fire suppression PPE

13.3.3.3 Prior to the occupational medical evaluation of individuals of specialized teams, the fire department physician shall review the information provided by the AHJ to determine medical examination criteria for any specialized essential job tasks.

13.3.4* For an individual who has any of the medical conditions identified in Table 13.6, Table 13.7, or Table 13.8, an aerobic cardiorespiratory fitness capacity equal to the 50th percentile for the general population based on the selected exercise protocol and the individual's biological sex and age shall be required.

13.3.4.1* For an individual whose cardiorespiratory fitness falls below the 50th percentile for the general population based on the selected exercise protocol and the individual's biological sex and age, the fire department physician shall do both of the following:

- (1) Recommend to the AHJ that the individual be restricted from performing essential job tasks 1, 2, 4, 5, 6, 7, 8, 9, and 13
- (2) Require the individual to participate in a prescribed cardiorespiratory fitness program

13.4* Fire Department Physician Role. After completing the occupational medical evaluation, the fire department physician shall report to the AHJ any applicable job restrictions associated with specific essential job tasks that cannot be safely and effectively performed by the individual due to a medical condition(s) or physical fitness.

13.4.1 The fire department physician shall perform an individualized assessment of the individual.

13.4.2 The fire department physician shall be responsible for determining the medical qualification status of the individual in accordance with the following:

- (1) *No restriction:* There are no essential job tasks that the individual cannot safely and effectively perform.
- (2) *Permanent restriction:* There are specific essential job tasks that the individual cannot safely and effectively perform due to a permanent or long-term medical condition.

- (3) *Temporary restriction:* There are specific essential job tasks that the individual cannot safely and effectively perform due to a medical condition that the fire department physician considers could be temporary, allowing the individual to return for reevaluation if allowed within that jurisdiction by the AHJ.

13.4.3 Removal of an individual from permanent or temporary restriction status shall be approved by the fire department physician.

13.4.4 The fire department physician shall provide the AHJ a written statement that identifies the specific essential job task(s) the individual is restricted from performing.

13.4.5 The fire department physician shall not make a recommendation regarding the individual's employment in the fire department.

13.4.6 There shall be no blanket exclusions.

13.4.7* The AHJ shall determine the individual's employment status in consideration of any restrictions identified by the fire department physician and whether any reasonable accommodations might permit the individual to safely and effectively perform the essential job tasks. (See Annex D for additional legal considerations.)

13.5* Medical Conditions Involving the Eyes, Ears, Nose, Mouth, or Throat. The physician shall report any applicable job restrictions associated with the conditions in Table 13.5.

13.5.1 A hearing assistive device(s) shall be permitted if the individual meets the minimum hearing standard without the device(s).

13.6* Medical Conditions Involving the Lungs, Chest, and Respiratory System. The physician shall report any applicable job restrictions associated with the conditions in Table 13.6 based on the physician's consideration of the following guidance:

- (1) Efficient breathing and respiratory gas exchange are required to safely and effectively perform essential job tasks 1, 2, 3, 4, 5, 6, 7, 9, and 13.
- (2) Wearing protective clothing increases the oxygen consumption required to perform these tasks and, therefore, increases the respiratory workload.
- (3) SCBA is a positive-pressure demand valve respirator that provides a barrier against the inhalation of noxious or toxic gases and particulate matter but at increased metabolic cost due to its weight and increased respiratory workload (i.e., resistance and dead space).
- (4) If respiratory function or gas exchange is already compromised (i.e., increased work of breathing from structural or functional abnormalities, hypoxia, or hypercapnia) prior to the performance of essential job tasks, then the increased oxygen demand of strenuous physical exertion, while wearing PPE or SCBA, leads to early onset of fatigue or respiratory insufficiency.
- (5) Lung, chest wall, and respiratory disorders can compromise the individual's ability to safely and effectively perform essential job tasks 1, 2, 3, 4, 5, 6, 7, 9, and 13.

Table 13.5 Medical Conditions Involving the Eyes, Ears, Nose, Mouth, or Throat

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
Disorders of the Eyes or Vision*			
(1)* Loss of far visual acuity	Meets either of the following criteria: a) Has worse than 20/100 binocular vision, uncorrected b) Has worse than 20/40 binocular vision, corrected with hard or soft contact lenses or spectacles	Has 20/40 or better binocular vision, corrected with soft contact lenses, regardless of uncorrected visual acuity	6, 8, 10, 12
(2)* Loss of color vision	Has monochromatic vision resulting in inability to use thermal imaging cameras	—	6, 10
(3)* Surgery and treatment	Had radial keratotomy or Lasik within 2 weeks or had repair of retinal detachment within 3 months	—	6, 8, 10
(4)* Loss of depth perception	Has monocular vision stereopsis without fusional capacity	Is able to accommodate for depth perception with at least 6 months experience after loss of binocular vision	10
(5) Loss of peripheral vision	Has less than 110 degrees in the horizontal meridian in either eye	—	10
(6) Loss of near visual acuity	Has worse than 20/40 binocular, corrected vision	—	6, 8, 10, 12
Disorders of the Ears or Hearing*			
(7)* Hearing loss	Meets any of the following criteria: a) Is unable to hear or understand the spoken voice under conditions of high background noise b) Is unable to hear, recognize, or localize cries for assistance or audible alarms c) Has average hearing loss of 40 dB or more at 500 Hz, 1000 Hz, 2000 Hz, and 3000 Hz, in the unaided, better ear (<i>See 13.5.1.</i>)	—	2, 6, 8, 10, 12, 13
(8)* Asymmetric (unequal) hearing loss	Is unable to localize cries for assistance or audible alarms	—	6
(9) Abnormal hearing, including the following: a) Atresia, stenosis, or tumor of the auditory canal b) *External otitis, recurrent c) *Agenesis or traumatic deformity of the auricle d) *Mastoiditis or surgical deformity of the mastoid e) *Ménière's disease, labyrinthitis, or tinnitus f) *Otitis media, recurrent or chronic	Meets either of the following criteria: a) Is unable to hear or understand the spoken voice under conditions of high background noise b) Is unable to hear, recognize, or localize cries for assistance or audible alarms	—	2, 6, 8, 10, 12, 13

(continues)

Table 13.5 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
g) Surgical procedures to correct or improve hearing or other conditions of the ear			
(10)* Vertigo, ataxia, or disturbance of gait or balance	Is unable to tandem gait walk	—	1, 8, 10, 13
Disorders of the Nose, Mouth, or Throat			
(11)* Deformity of nose, mouth, or jaw	Is unable to successfully pass a respirator fit test	—	1, 2, 3, 4, 5, 6, 7, 8, 12, 15
(12) Aphonia (inability to speak)	Is unable to communicate verbally	—	12, 13
(13) Chronic disease of the nose, nasopharynx, oropharynx, or mouth, including the following: a) *Allergic rhinitis b) *Epistaxis, recurrent c) *Sinusitis, recurrent d) *Dysphonia e) *Anosmia f) Nasopharyngeal polyposis	Meets any of the following criteria: a) Is unable to successfully wear PPE for extended periods of time while performing firefighting tasks b) Is unable to communicate clearly while wearing PPE c) Is unable to identify the presence of smoke or chemicals by smell		
(14)* Obstructive sleep apnea	Has apnea hypopnea index greater than 15, with clinically significant oxygen desaturation or with toxic arrhythmias	Meets all the following provisions: a) If treatment is indicated, has medical records demonstrating compliance b) Experiences no excessive daytime sleepiness c) Has a signed statement from a sleep specialist (sleep, pulmonary, or neurology), indicating that the individual can safely and effectively perform the essential job tasks	10, 11, 14

*Additional information is provided in A.13.5.

Table 13.6 Medical Conditions Involving the Lungs, Chest, and Respiratory System

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
(1) Tracheostomy, not sealed	Is unable to successfully pass a respirator fit test Is unable to communicate due to oropharyngeal dysfunction Is unable to clear secretions or inhaled particulate matter	— — —	1, 2, 3, 4, 5, 6, 7, 8, 12, 15 12, 15 3
(2)* Chronic cough (productive or nonproductive with or without hemoptysis)	Is unable to wear a respirator continuously and without interruption or to safely and effectively perform in an irritant environment due to any of the following: a) The severity of the cough b) The impact of irritants and SCBA use on cough severity c) The impact of cough severity on the ability to wear a respirator, especially SCBA d) The impact of cough severity on the ability to safely and effectively perform strenuous exertion		2, 3
(3)* Asthma	—	Meets all the following provisions annually or at the frequency indicated: a) Has no bronchospasm and does not use or require bronchodilator rescue medications during exertion, temperature or humidity extremes, irritant exposures, fire suppression, or hazmat or training activities b) Has not required systemic corticosteroids, emergency room treatment, or hospital admission for asthma or other pulmonary disease in the past 2 years c) Shows reserve in pulmonary function (i.e., both FVC and FEV ₁ greater than or equal to 80% of predicted) without a bronchodilator response (i.e., an increase in FEV ₁ from baseline by at least 12% and at least 200 ml), measured off all bronchodilators on the day of testing d) If a bronchial challenge test is indicated, has a normal or negative response of less than 20% decline in FEV ₁ from baseline for provocative challenge testing (e.g., for methacholine provocation a PC ₂₀ greater than 8 mg/ml is considered normal, as response at dose greater than 8 mg/ml might not be clinically significant), or less than 13% decline in FEV ₁ from baseline for exercise challenge testing using cold air	1, 2, 3, 4, 5, 6, 7, 9, 13, 15

(continues)

Table 13.6 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		e) Has a signed statement from a pulmonary or asthma specialist that the individual meets the provisions specified in (a) through (d) and can safely and effectively perform the essential job tasks without the use of bronchodilator rescue medications	
(4)* Allergic lower respiratory disorders	Has allergic trigger(s) that could be encountered during performance of essential job tasks	Meets the special provisions for asthma in (3)	1, 2, 3, 4, 5, 6, 7, 9, 13, 15
(5)* Chronic obstructive pulmonary disease (COPD)	Has pulmonary function tests with an absolute FEV ₁ /FVC ratio less than 0.70 and an FEV ₁ less than 70% of predicted measured off all bronchodilators on the day of testing	Meets all the following provisions annually or at the frequency indicated: a) Has 60% or greater of predicted FEV₁ and no bronchodilator response (i.e., an increase in FEV₁ from baseline by at least 12% and at least 200 ml), measured off all bronchodilators on the day of testing b) Has no bronchospasm and does not use or require bronchodilator rescue medications during exertion; temperature or humidity extremes; irritant exposures; or fire suppression, hazmat, or training activities c) Has not required systemic corticosteroids, emergency room treatment, or hospital admission for COPD or other pulmonary disease in the past 2 years d) Has experienced continuous tobacco cessation for more than 3 months e) Does not have a chronic cough that compromises the performance of the essential job tasks [see (4)] f) Every 2 to 3 years, as medically indicated, when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (see 13.3.4.1): i. Bronchospasm ii. A decline in FEV₁ to less than 60% predicted iii. Oxygen desaturation (i.e., a fall in oxygen saturation on room air by 4% from baseline or to below 90%) iv. Cardiac ischemia or toxic arrhythmias g) Has a signed statement and medical records from a pulmonary specialist, indicating that the individual meets the criteria specified in (a) through (f) and can safely and effectively perform the essential job tasks	

(continues)

Table 13.6 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
(6)* Hypoxemic disorders, moderate to severe	Has oxygen saturation less than 90%, measured at rest and corrected to sea level on room air	—	1, 2, 3, 4, 5, 6, 7, 9, 13, 15
(7)* Exertional-related oxygen desaturation	Has either of the following: a) An oxygen saturation of 90% to 94%, corrected to sea level on room air, at rest b) A drop in oxygen saturation by 4% from baseline during exercise or physical exertion	Meets all the following provisions annually or at the frequency indicated: a) Every 2 to 3 years, as medically indicated, when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>): i. Bronchospasm ii. A decline in FEV ₁ to less than 60% of predicted iii. Oxygen desaturation (i.e., a fall in oxygen saturation on room air by 4% from baseline or to below 90%) iv. Cardiac ischemia or toxic arrhythmias b) Has a signed statement and medical records from a pulmonary specialist, indicating that the individual meets (a) and can safely and effectively perform the essential job tasks	
(8)* Hypercapnic disorders	Has elevated carbon dioxide with serum P _{CO2} greater than or equal to 45 mm Hg	—	1, 2, 3, 4, 5, 6, 7, 9, 13, 15
(9)* Pulmonary hypertension	Has mean pulmonary arterial pressure greater than 20 mm Hg	Meets all the following provisions annually or at the frequency indicated: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Is not hypoxemic at rest [<i>see (6) and (7)</i>] d) Every 2 to 3 years, as medically indicated, when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>): i. Bronchospasm ii. A decline in FEV ₁ to less than 60% of predicted iii. Oxygen desaturation (i.e., a fall in oxygen saturation on room air by 4% from baseline or to below 90%) iv. Cardiac ischemia or toxic arrhythmias	1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 15

(continues)

Table 13.6 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		e) Has a signed statement and medical records from a pulmonary or cardiology specialist, indicating that the individual meets (a) through (d) and can safely and effectively perform the essential job tasks	
(10) Tracheal stenosis or tracheomalacia	Has pulmonary function (FVC or FEV ₁) less than 70% of predicted without the use of bronchodilators	Meets all the following provisions annually or at the frequency indicated: a) Has 60% or greater of predicted FEV ₁ without the use of bronchodilators b) Inspiratory flow volume loop and inspiratory flow rates normal or minimally reduced. c) Every 2 to 3 years, as medically indicated, when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>): i. Bronchospasm ii. A decline in FEV ₁ to less than 60% of predicted iii. Oxygen desaturation (i.e., a fall in oxygen saturation on room air by 4 percent from baseline or to below 90 percent) iv. Cardiac ischemia or toxic arrhythmias d) Has a signed statement and medical records from a pulmonary specialist, indicating that the individual meets (a) through (c) and can safely and effectively perform the essential job tasks	1, 2, 3, 4, 5, 6, 7, 8
(11) Pulmonary resection surgery, chest wall surgery, or pneumothorax	Meets any of the following criteria: a) Has not had time for healing and pain resolution (typically 3 months) b) Has pulmonary function tests (FVC or FEV ₁) less than 70% predicted without the use of bronchodilators c) Has hypoxemia [<i>see (8)</i>] d) Has diffusing capacity (DLCO) less than 60% of predicted e) Has not received clearance by a thoracic surgeon or pulmonary specialist	Meets all the following provisions annually or at the frequency indicated, after time for healing and pain resolution (typically 3 months) and with clearance by a thoracic surgeon or pulmonary specialist: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Is not hypoxemic at rest [<i>see (6) and (7)</i>] d) Every 2 to 3 years, as medically indicated, when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>): i. Bronchospasm ii. A decline in FEV ₁ to less than 60% of predicted	1, 2, 4, 5, 6, 7, 13

(continues)

Table 13.6 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		iii. Oxygen desaturation (i.e., a fall in oxygen saturation on room air by 4% from baseline or to below 90%) iv. Cardiac ischemia or toxic arrhythmias	
(12)* Spontaneous pneumothorax	Meets any of the following criteria: a) Has not had time for healing and pain resolution (typically 3 months) b) Has pulmonary function tests (FVC or FEV ₁) less than 70% of predicted without the use of bronchodilators c) Has elevated risk for recurrence due to cystic or bullous lung disease as indicated with chest CT imaging	Meets all the following provisions after time for healing and pain resolution (typically 3 months) and with clearance by the thoracic surgeon: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Has no hypoxemia [see (6) and (7)] d) Has minimal or surgically corrected cystic or bullous disease as demonstrated on a chest CT scan e) Is not required to perform SCUBA diving as part of the individual's essential job tasks	1, 2, 3, 4, 5, 6, 7, 8, 13
(13) Chest wall deformity, fibrothorax, or diaphragm abnormalities	Has pulmonary function (FVC or FEV ₁) less than 70% predicted without the use of bronchodilators	Meets all the following provisions: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Has no hypoxemia [see (6) and (7)]	1, 2, 4, 5, 6, 7, 8
(14)* Pleural effusion(s)	Meets any of the following criteria: a) Has not had time for healing and pain resolution (typically 3 months) b) Has pulmonary function tests (FVC or FEV ₁) less than 70% of predicted without the use of bronchodilators c) Has hypoxemia [see (8)] d) Has not received clearance by a thoracic surgeon or pulmonary, cardiology, or oncology specialist, depending on the etiology of the effusion	Meets all the following provisions after time for healing and pain resolution (typically 3 months) and with clearance by the thoracic surgeon or pulmonary, cardiology, or oncology specialist: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Has no hypoxemia [see (6) and (7)] d) Has no evidence of congestive heart failure or cardiomyopathy due to any etiology, including any disease leading to a lower-than-normal left or right ventricular ejection fraction (see section specific to the underlying disease) e) Has no evidence of an underlying cancer as the cause of the effusion(s)	1, 2, 4, 5, 6, 7, 8
(15) Bronchiectasis or bronchiolitis obliterans	Has pulmonary function (FVC or FEV ₁) less than 70% of predicted without the use of bronchodilators	Meets all the following provisions annually: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Has no hypoxemia [see (6) and (7)] d) Does not have a chronic cough that compromises the performance of the essential job tasks [see (4)]	1, 2, 3, 4, 5, 6, 7, 8

(continues)

Table 13.6 Continued

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
(16) Interstitial lung diseases	Meets any of the following criteria: a) Has pulmonary function (FVC or FEV ₁) less than 70% of predicted without the use of bronchodilators b) Has hypoxemia [see (8)] c) Has diffusing capacity (DLCO) less than 60% of predicted	Meets all the following provisions annually or at the frequency indicated: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Has no hypoxemia [see (6) and (7)] d) Does not have a chronic cough that compromises the performance of the essential job tasks [see (4)] e) Every 2 to 3 years, as medically indicated, when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (see 13.3.4.1): i. Bronchospasm ii. A decline in FEV ₁ to less than 60% of predicted iii. Oxygen desaturation (i.e., a fall in oxygen saturation on room air by 4% from baseline or to below 90%) iv. Cardiac ischemia or toxic arrhythmias f) Has a signed statement and medical records from a pulmonary specialist, indicating that the individual meets the criteria specified in (a) through (d) and can safely and effectively perform the essential job tasks	
(17)* Sarcoidosis	Meets any of the following criteria: a) Has pulmonary function (FVC or FEV ₁) less than 70% of predicted without the use of bronchodilators b) Has hypoxemia [see (8)] c) Has diffusing capacity (DLCO) less than 60% of predicted d) Has visual impairment (see Section 13.5) e) Has cardiac dysfunction (e.g., cardiomyopathy or arrhythmia) at rest or exercise f) Has other moderate to severe end-organ dysfunction g) Needs treatment with systemic corticosteroids or other immunosuppressive medications	Meets all the following provisions annually: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Has no hypoxemia [see (8)] d) Has no evidence of end-organ dysfunction e) Has normal cardiac function and electrical rhythm activity as assessed with electrocardiogram and echocardiography f) Has not been prescribed immunosuppressive medications (e.g., high-dose systemic corticosteroids, methotrexate, or TNF-alpha blockers) for at least 3 months g) Has a signed statement and medical records from a pulmonary specialist, indicating that the individual meets the provisions specified in (a) through (f) and can safely and effectively perform the essential job tasks	1, 2, 3, 4, 5, 6, 7, 8, 13

(continues)

Table 13.6 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
(18)* Pulmonary embolism	Meets any of the following criteria: a) Has hypoxemia [see (8)] b) Is currently prescribed anticoagulation medication (see Section 13.13) c) Has persistent blood clots d) Has high risk for recurrent pulmonary embolism	Meets all the following provisions: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Has no hypoxemia [see (8)] d) Is not currently prescribed anticoagulation medication (see Section 13.13) e) Has resolved or controlled the underlying risk factor for pulmonary embolism	1, 2, 3, 4, 5, 6, 7, 8, 13
(19) Cystic lung diseases	Meets any of the following criteria: a) Has pulmonary function (FVC or FEV ₁) less than 70% of predicted without the use of bronchodilators b) Has hypoxemia [see (8)] c) Has diffusing capacity (DLCO) less than 60% of predicted	Meets all the following provisions: a) Has 60% or greater of predicted FVC without the use of bronchodilators b) Has 60% or greater of predicted diffusing capacity (DLCO) c) Has no hypoxemia [see (6) and (7)] d) Has minimal or surgically corrected cystic or bullous disease as demonstrated on a chest CT scan e) Is not required to perform SCUBA diving as part of the individual's essential job tasks	1, 2, 3, 4, 5, 6, 7, 8, 13
(20) Tuberculosis	See Section 13.16	See Section 13.16	1, 2, 3, 4, 5, 6, 7, 8, 13
(21) Lung cancer	See Section 13.20	See Section 13.20	See Section 13.20
(22) Lung transplant (<i>also see Section 13.13 for anti-rejection medication</i>)	—	—	1, 2, 3, 4, 5, 6, 7, 9, 13, 15

*Additional information is provided in A.13.6.

13.7* Medical Conditions Involving the Cardiovascular System. The physician shall report any applicable job restrictions associated with the conditions in Table 13.7.

13.8* Medical Conditions Involving the Endocrine System and Metabolic Function. The physician shall report any applicable job restrictions associated with the conditions in Table 13.8.

13.9* Medical Conditions Involving the Gastrointestinal Tract and Abdominal Viscera. The physician shall report any applicable job restrictions associated with the conditions in Table 13.9 based on physician's evaluation of the individual's nutrition regimen and a propensity for symptomatic dehydration, anemia, chronic diarrhea, or incapacitating pain syndromes.

13.10* Medical Conditions Involving the Spine. The physician shall report any applicable job restrictions associated with the conditions in Table 13.10 based on physician's evaluation of peripheral motor weakness, loss of strength, loss of sensation, and loss of reflexes affecting endurance, strength, flexibility, pain, or gait.

13.11* Medical Conditions Involving Orthopedics. The physician shall report any applicable job restrictions associated with

the conditions in Table 13.11 with consideration of the following:

- (1) Firefighters with active, ongoing, or recurrent orthopedic disorders can have difficulty due to reduced motor strength, sensation, and flexibility as well as problems with fatigue, coordination, gait, and equilibrium.
- (2) PPE and SCBA can place the firefighter's involved extremity at a biomechanical disadvantage due to added weight and altered center of gravity.
- (3) Certain medications (e.g., narcotics and muscle relaxants) used to treat orthopedic conditions can produce or worsen somnolence, discoordination, and disequilibrium.

13.12* Medical Conditions Involving Neurologic Functions. The physician shall report any applicable job restrictions associated with the conditions in Table 13.12, which could impair the individual's neurologic functions, including central regulation, cognitive abilities, strength, perception, reflexes, coordination, gait, and equilibrium.

Table 13.7 Medical Conditions Involving the Cardiovascular System

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
(1)* Coronary artery disease	—	Meets the following provisions annually or at the frequency indicated: a) Has absence of angina pectoris, even if relieved by medication b) Has absence of stenosis in any coronary artery (i.e., greater than 70% lumen diameter narrowing) following treatment c) Every 2 to 3 years, as medically indicated, has normal left ventricular ejection fraction as measured by radionuclide scan, contrast ventriculography, or echocardiography d) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response e) Has control of modifiable risk factor(s) for acute coronary plaque rupture f) Had no myocardial infarction within the previous 6 months g) Had no coronary artery bypass surgery within the previous 6 months h) Had no angioplasty, with or without stent placement, within the previous 3 months i) Is not currently prescribed anticoagulation medication, regardless of dose (<i>see Section 13.13 for anticoagulation medication</i>) j) Has completed cardiac rehabilitation, if indicated k) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (j) and can safely and effectively perform the essential job tasks	1, 2, 4, 5, 6, 7, 8, 13, 15
(2) Myocardial infarction or coronary revascularization procedure	—	Meets the following provisions: a) Has no exercise-induced myocardial ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response when a symptom-limited imaging stress test is performed to at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) b) Is not currently prescribed anticoagulation medication, regardless of dose (<i>see Section 13.13 for anticoagulation medication</i>)	1, 2, 4, 5, 6, 7, 8, 13, 15
(3) Congestive heart failure (CHF)	Has CHF due to any etiology, including any disease leading to a lower than normal left or right ventricular ejection fraction, even if corrected by medication	Meets the following provisions every 2 to 3 years, as medically indicated: a) Has no structural abnormalities as demonstrated by cardiac imaging b) Has normal left ventricular function as demonstrated by cardiac imaging	1, 2, 4, 5, 6, 7, 8, 13, 15

(continues)

Table 13.7 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		c) Has no exercise-induced evidence of ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response observed when a symptom-limited imaging stress test is performed to at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) d) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (c) and can safely and effectively perform the essential job tasks If due to a reversible process (e.g., hyperthyroidism, anemia), has no abnormality in cardiac performance off all cardiac medications	
(4) Restrictive cardiomyopathy and constrictive pericarditis	Has heart failure	Meets the following provisions every 2 to 3 years, as medically indicated: a) Has no structural abnormalities as demonstrated by cardiac imaging b) Has normal left ventricular function as demonstrated by cardiac imaging c) Has no exercise-induced evidence of toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response when a symptom-limited imaging stress test is performed to at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) d) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (c) and can safely and effectively perform the essential job tasks	1, 2, 4, 5, 6, 7, 8, 13, 15
(5)* Acute pericarditis, acute endocarditis, and acute myocarditis	—	Meets the following provisions every 2 to 3 years, as medically indicated: a) Has no structural abnormalities as demonstrated by cardiac imaging b) Has normal left ventricular function as demonstrated by cardiac imaging	1, 2, 4, 5, 6, 7, 8, 9, 13, 15

(continues)

Table 13.7 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		c) Has no exercise-induced evidence of toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response observed when a symptom-limited imaging stress test is performed to at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) d) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (c) and can safely and effectively perform the essential job tasks	
(6) Chronic pericarditis, endocarditis, or myocarditis	Has heart failure, valvular incompetence, or arrhythmias	Meets the following provisions every 2 to 3 years, as medically indicated: a) Has no structural abnormalities as demonstrated by cardiac imaging b) Has normal left ventricular function as demonstrated by cardiac imaging c) Has no exercise-induced evidence of toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response observed when a symptom-limited imaging stress test is performed to at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) d) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (c) and can safely and effectively perform the essential job tasks	1, 2, 4, 5, 6, 7, 8, 13, 15
(7)* Hypertrophic obstructive cardiomyopathy —		Meets the following provisions annually or at the frequency indicated: a) Has no history of syncope b) Has no history of cardiac arrest c) Has no history of toxic arrhythmias, including recent monitoring by Holter or loop recorder d) Has left ventricle thickness of less than 30 mm as demonstrated by cardiac imaging	1, 2, 4, 5, 6, 7, 8, 13, 15

(continues)

Table 13.7 Continued

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		e) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response observed when a symptom-limited imaging stress test is performed to at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) f) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (e) and can safely and effectively perform the essential job tasks	
(8)* Recurrent syncope	—	Has no recurrence within the last 2 years (<i>If the underlying cause is identified, see the relevant section for that condition.</i>)	13
(9)* Pacemaker or automatic implantable defibrillator	—	Meets the following provisions annually or at the frequency indicated: a) Is no longer dependent on the pacemaker or automatic defibrillator (even if still implanted) b) Is not currently prescribed cardiac anti-arrhythmic medication and has no inducible toxic arrhythmias as determined by a cardiologist with testing (e.g., 24-hour or longer duration loop recorders, or electrophysiology testing) c) Has no structural abnormalities as demonstrated by cardiac imaging d) Has normal left ventricular function as demonstrated by cardiac imaging e) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response observed when a symptom-limited imaging stress test is performed to at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) f) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (e) and can safely and effectively perform the essential job tasks	13
(10)* Mitral valve stenosis	Stage C or D		1, 2, 4, 5, 6, 7, 8, 13

(continues)

Table 13.7 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
(11)* Mitral valve insufficiency (regurgitation)	Stage C or D		1, 2, 4, 5, 6, 7, 8, 13
(12)* Mitral valve prolapse	1. Arrhythmias 2. Abnormal left ventricular ejection fraction (LVEF) 3. Mitral valve regurgitation (stage C or D) 4. Left atrial dilatation 5. Mitral annular disjunction	No arrhythmias No history of arrhythmogenic syncope Normal ECG	1, 2, 4, 5, 6, 7, 8, 13
(13)* Aortic valve stenosis	Stage C or D		1, 2, 4, 5, 6, 7, 8, 13
(14)* Aortic valve insufficiency (regurgitation)	Stage C or D		1, 2, 4, 5, 6, 7, 8, 13
(15) Prosthetic cardiac valves or valve repair (<i>see Section 13.13 for anticoagulation medication</i>)	—	Meets the following provisions annually: a) Is not currently prescribed anticoagulation medication, regardless of dose (<i>see Section 13.13</i>) b) Has normal function of the prosthetic or repaired valve as demonstrated by cardiac imaging c) Has normal left ventricular function as demonstrated by cardiac imaging d) Has a signed statement and medical records from a cardiologist or thoracic surgeon, indicating that the individual meets the provisions specified in (a) through (c) and can safely and effectively perform the essential job tasks	1, 2, 4, 5, 6, 7, 8, 13
(16)* Wolff-Parkinson-White (WPW) syndrome	Has WPW with structural heart disease Has WPW without structural heart disease but with a history of supraventricular tachycardia (SVT)	— Meets the following provisions annually: a) Is treated successfully with ablation b) Is not currently prescribed cardiac anti-arrhythmic medication and has no toxic arrhythmias present as determined by a cardiologist with testing (e.g., 24-hour or longer duration loop recorders, or electrophysiology testing) c) Has no structural abnormalities as demonstrated by cardiac imaging d) Has normal left ventricular function as demonstrated by cardiac imaging e) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (d) and can safely and effectively perform the essential job tasks	13
(17)* Toxic arrhythmias	Has supraventricular arrhythmias, atrial fibrillation, atrial flutter, or paroxysmal atrial tachycardias where persistent or recurrent	Meets the following provisions annually or at the frequency indicated: a) Has normal function and no structural abnormalities as demonstrated by cardiac imaging	8, 13

(continues)

Table 13.7 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		b) Is not currently prescribed cardiac anti-arrhythmic medication and has no toxic arrhythmias present as determined by a cardiologist with testing (e.g., 24-hour or longer duration loop recorders, or electrophysiology testing) c) Is not currently prescribed anticoagulation medication d) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of ischemia, toxic arrhythmias, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) e) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (d) and can safely and effectively perform the essential job tasks	
	Has ventricular arrhythmias (e.g., ventricular tachycardia and ventricular fibrillation) where persistent or recurrent or frequent toxic-appearing ectopy	Meets the following provisions annually or at the frequency indicated: a) Has normal function and no structural abnormalities as demonstrated by cardiac imaging b) Is not currently prescribed cardiac anti-arrhythmic medication and has no toxic arrhythmias present as determined by a cardiologist with testing (e.g., 24-hour or longer duration loop recorders, or electrophysiology testing) c) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>), off cardiac medications d) Every 2 to 3 years, as medically indicated, shows that ventricular ectopy, if present, resolves with increasing levels of exercise	13

(continues)

Table 13.7 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		e) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (d) and can safely and effectively perform the essential job tasks	
(18) Atrioventricular block	Has third-degree or complete atrioventricular block	Meets the following provisions annually or at the frequency indicated: a) Has no structural abnormalities as demonstrated by cardiac imaging b) Has normal left ventricular function as demonstrated by cardiac imaging c) Has no evidence for sinus pause greater than 3 seconds d) Has normal increase in heart rate with exercise in the absence of a mechanical pacemaker e) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>)	13
(19)* Hypertension, moderate to severe	Has systolic pressure greater than or equal to 160 mm Hg or diastolic pressure greater than or equal to 100 mm Hg	Meets the following provisions annually or at the frequency indicated: a) Has controlled normal blood pressure as demonstrated by three normal readings over at least a 30-day period b) Has a risk of ASCVD under 10% as determined by the ACC/AHA Heart Risk Calculator c) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of left ventricular systolic dysfunction, ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, or abnormal blood pressure response when a symptom-limited imaging stress test is performed to at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) d) Has no restrictions associated with end-organ damage (see the section of this chapter that corresponds to the specific organ that is damaged)	1, 2, 4, 5, 6, 7, 9, 13, 15

(continues)

Table 13.7 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
(20)* Hypertension, mild	Has systolic blood pressure of 140 to 159 mm Hg or diastolic blood pressure of 90 to 99 mm Hg and either of the following: a) Evidence of end-organ damage b) 10% or greater risk of ASCVD over the next 10 years, as determined by using the 10-year ACC/AHA Heart Risk Calculator	Meets the following provisions annually or at the frequency indicated: a) Is referred to their primary care physician to ensure that their blood pressure is controlled (i.e., three normal readings over at least a 30-day period), to screen for end-organ damage, and to address underlying co-morbidities and the possible need for lifestyle modifications b) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of left ventricular systolic dysfunction, ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, or abnormal blood pressure response observed when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>) c) Has no restrictions associated with end-organ damage (<i>see the section of this chapter that corresponds to the specific organ that is damaged</i>)	1, 2, 4, 5, 6, 7, 9, 13, 15
(21)* Metabolic syndrome	—	Meets the following provisions annually or at the frequency indicated: a) Has control of modifiable risk factor(s) b) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure response observed when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>)	1, 2, 4, 5, 6, 7, 13
(22) Congenital abnormalities of the heart, aorta, or other major vessels	Has a history of a cardiovascular congenital abnormality that has been treated by surgery but with residual complications or that has not been treated by surgery, leaving residuals or complications	—	1, 2, 4, 5, 6, 7, 8, 13
(23) Cardiac hypertrophy	—	Meets the following provisions annually or at the frequency indicated: a) Has normal or only minimally reduced left ventricular function as demonstrated by cardiac imaging	1, 2, 4, 5, 6, 7, 13

(continues)

Table 13.7 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
		b) Has normal increase in heart rate with exercise in the absence of a mechanical pacemaker c) Every 2 to 3 years, as medically indicated, has normal blood pressure at rest d) Every 2 to 3 years, as medically indicated, has no exercise-induced evidence of ischemia, toxic arrhythmias, hypoxia, exercise hemoglobin oxygen desaturation, left ventricular dysfunction, or abnormal blood pressure when a symptom-limited imaging stress test is performed to at least 85% maximum predicted heart rate and to a MET level of at least the 50th percentile cardiorespiratory fitness level for the general population based on the selected exercise protocol and the individual's biological sex and age (<i>see 13.3.4.1</i>), off cardiac medications e) Has a signed statement and medical records from a cardiologist, indicating that the individual meets the provisions specified in (a) through (d) and can safely and effectively perform the essential job tasks	
(24) Heart transplant (<i>see Section 13.13 for antirejection medication</i>)	—	—	1, 2, 4, 5, 6, 7, 13
Vascular Disorders*			
(25) Aortic dilation or aneurysm (i.e., thoracic aortic aneurysm or abdominal aortic dilation or aneurysm greater than or equal to 4.5 cm)	—	Meets the following provisions annually or at the frequency indicated: a) Has controlled normal blood pressure as demonstrated by three normal readings over at least a 30-day period b) Every 1 to 2 years, has stable aortic measurement as demonstrated by cardiac imaging c) Has a signed statement and medical records from a cardiologist, thoracic surgeon, or vascular surgeon, indicating that the individual meets the provisions specified in (a) and (b) and can safely and effectively perform the essential job tasks d) If the thoracic or abdominal aortic aneurysm is surgically repaired, has no complications after 6 months of postsurgical healing and meets (a) through (c)	1, 2, 4, 5, 6, 7, 13
(26)* Carotid artery disease	Is symptomatic and has reduction in blood flow of greater than 70%	—	13
(27) Thoracic outlet syndrome	Is symptomatic	—	1, 13
(28) Peripheral vascular disease (arterial or venous)	Is symptomatic (e.g., claudication, Raynaud's phenomenon) or has severe peripheral edema	—	1, 4, 5, 6, 7, 9, 13

(continues)

Table 13.7 *Continued*

Condition	Special Criteria for Restriction	Special Provisions for No Restriction	Affected Essential Job Task(s)
(29) Thrombophlebitis or deep venous thrombosis	Has persistent or recurrent condition or is prescribed anticoagulation medication, regardless of dose (<i>see Section 13.13 for anticoagulation medication</i>)	Meets both of the following: a) Is able to wear PPE b) Has no restrictions related to any underlying cause c) Is not currently prescribed anticoagulation medication, regardless of dose (<i>see Section 13.13 for anticoagulation medication</i>)	
(30) Circulatory instability, as indicated by orthostatic hypotension or persistent tachycardia	—	—	13
(31) Chronic, severe lymphedema or massive edema of any type (e.g., due to lymphadenopathy, severe venous valvular incompetency, endocrine abnormalities, or low flow states)	—	Meets both of the following: a) Is able to wear PPE b) Has no restrictions related to any underlying cause	1, 4, 5, 6, 7, 9, 13
(32) Congenital or acquired lesions of the aorta or major blood vessels	Has a lesion that interferes with circulation or increases the potential for life-threatening sudden incapacitation	—	1, 4, 7, 13

*Additional information is provided in A.13.7.