

NFPA® 1999

Standard on Protective Clothing and Ensembles for Emergency Medical Operations 2013 Edition

(Incorporating TIA 13-1; issued 4/7/15)

This edition of NFPA 1999 includes Tentative Interim Amendment (TIA) No. 13-1. Text changes introduced by this TIA are indicated by boxed notices and shaded text within the document. Vertical lines indicate text changes that were made during the 2013 revision cycle.



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NFPA® 1999

Standard on

Protective Clothing and Ensembles for Emergency Medical Operations

The title of NFPA 1999 was revised by a tentative interim amendment (TIA). See paragraph 2, below.

2013 Edition

This edition of NFPA 1999, *Standard on Protective Clothing and Ensembles for Emergency Medical Operations*, was prepared by the Technical Committee on Emergency Medical Services Protective Clothing and Equipment and released by the Technical Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment. It was issued by the Standards Council on November 27, 2012, with an effective date of December 17, 2012, and supersedes all previous editions.

An extensive Tentative Interim Amendment (TIA), indicated by boxed notices and shaded text at the appropriate areas within the document, was issued on April 7, 2015. This TIA introduces changes throughout the document related to the personal protective equipment (PPE) requirements of first responders and medical first receivers against Ebola Viral Disease (EVD) and other highly infectious liquid-borne pathogens. The TIA focuses on providing performance requirements for PPE ensembles that offer full body protection, and a liquid integrity evaluation to demonstrate an established protective level of performance.

For further information on tentative interim amendments, see Section 5 of the Regulations Governing the Development of NFPA Standards, available at <http://www.nfpa.org/regs>.

This edition of NFPA 1999 was approved as an American National Standard on December 17, 2012.

Origin and Development of NFPA 1999

This standard was developed to address protective garments, gloves, and facewear designed that protect persons providing emergency medical care against exposure to liquid-borne pathogens during emergency medical operations. NFPA 1999 defines minimum performance for protective clothing as required by the Occupational Safety and Health Administration (OSHA) Final Rule (29 CFR 1910.1030) *Protecting Health Care Workers from Occupational Exposure to Bloodborne Pathogens*. The Final Rule states:

“When there is occupational exposure, the employer shall provide at no cost to the employee, appropriate personal protective equipment, such as, but not limited to, gloves, gowns, laboratory coats, face shields or masks, and eye protection, and mouthpieces, resuscitation bags, pocket masks, or other ventilation devices. Personal protective equipment will be considered ‘appropriate’ only if it does not permit blood or other potential infectious materials to pass through to or reach the employee’s work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.”

NFPA 1999 offers specific performance criteria that involve exposing protective clothing materials to surrogate virus challenge utilizing a specific time and pressure protocol. This procedure has been documented to discriminate between current protective clothing materials and to correlate with visual penetration results that are obtained with a human factors evaluation. Each type of clothing must resist penetration to blood-borne pathogens as determined by this test.

Additional garment requirements cover overall liquidtight integrity, material strength, physical hazard resistance, seam strength, and closure strength.

Additional requirements for gloves cover minimum performance for tensile and elongation properties in an “as received” condition as well as following heat aging and isopropyl alcohol immersion, minimum sizing, and liquidtight integrity for intended areas of penetration.

Additional requirements for facewear or face protection devices cover adequate visibility and integrity, in addition to resisting penetration of blood-borne pathogens.

The selection of test methods and performance requirements was based on surveys of emergency medical services (EMS) personnel and a technical study supported by the U.S. Fire Administration.

The Subcommittee on Hazardous Chemicals Protective Clothing began its work on the first edition of this document in 1990 and passed on its work to the Technical Committee on Fire Service Protective Clothing and Equipment in January 1991. The first edition was presented to the Association at the 1992 Annual Meeting in New Orleans, LA.

Since the first edition in 1992, the entire project for fire service protective clothing and equipment was reorganized in January 1995 by the Standards Council. The new project has a Technical Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment and eight technical committees operating within it. The Technical Committee on Emergency Medical Services Protective Clothing and Equipment is now responsible for NFPA 1999.

In 1997, the second edition incorporated single-use and reusable items of EMS protective clothing. Prior to that edition, there was no differentiation between single-use and reusable items. Items that were reused might not have continued to provide biopenetration barrier protection. Reusable items could be advantageous and cost-effective for certain items of EMS clothing such as garments. Durability conditioning was added to the test methods of items that would be identified as not for single use only. EMS gloves remain single-use items only. This was consistent with NFPA 1581, *Standard on Fire Department Infection Control Program*. EMS gloves were also newly required to be an FDA registered medical device.

The first edition allowed partial body garments, such as sleeve covers or apron-type gowns, and also allowed the biopenetration barrier protection to be less in area than the area covered by the garment (such as only the front of a smock or jacket having the biopenetration barrier protection). The second edition continued to permit partial body garments, but did not allow partial biopenetration barrier protection in a garment. Biopenetration barrier protection was required for the full area covered by the garment.

Test methods were completely reformatted to present consistency in test methods and to assure that all key elements of a test were given within the method.

The third edition of NFPA 1999 was reformatted into the new style for all NFPA codes and standards and, therefore, the chapter titles and numbering, as well as paragraph numbering, changed. In that edition, the Committee added new requirements for emergency medical work gloves, emergency medical footwear, and cleaning/utility gloves.

Emergency medical work gloves will provide the barrier protection from blood and liquid-borne pathogens that all EMS PPE provides, and a higher level of physical protection for incidents where rough or sharp surfaces could be contacted, such as during extrication operations. The emergency medical footwear can be configured either as a single-use, disposable bootie to pull over work shoes or as normal footwear designed for multiple uses. Both would provide the same barrier protection from blood and liquid-borne pathogens as other items of EMS PPE. The cleaning/utility gloves are single-use items to protect wearers during cleaning and decontamination of EMS equipment.

The third (2003) edition of NFPA 1999 was acted on by the NFPA membership at the November Association Technical Meeting in Atlanta, Georgia, on November 20, 2002, and became effective on February 6, 2003.

The 2008 (fourth) edition of NFPA 1999 included a number of changes that were implemented to address emerging needs for EMS providers as well as to address the special protection needs of first receivers at hospitals or other health care facilities. Specific attention was paid to types of emergency medical protective clothing items where certification activity and consequent use of certified products has been limited. Much of the work was supported by a research contract effort funded by the National Institute for Occupational Safety and Health (NIOSH) National Personal Protective Technology Laboratory (NPPTL). The NIOSH NPPTL research program involved a detailed investigation of emergency medical responder needs, identification of evaluation techniques to address these needs, testing of representative products, outreach to end-user groups to assist with discerning acceptable levels of protection, and the proposal of specific criteria. The results of this supporting work are available in the project final report, *Improved Criteria for Emergency Medical Protective Clothing, Contract No. 214-2006-M-15870 Final Report*.

The principal changes incorporated in the fourth edition of NFPA 1999 include the following:

- (1) Differentiation between multiple- and single-use protective garments based on specific physical property criteria.
- (2) Application of a flammability test for certain items of protective clothing to prevent the use of dangerous products in the event of accidental flame contact.
- (3) New design, performance, testing, documentation, and certification requirements for [C]BRN protective ensembles to provide protection for emergency services responders and medical receivers against biological agents and radiological particulates. *The use of the [C] in the "[C]BRN" format is to indicate that chemical protection is not offered by this ensemble, while retaining the widely used "CBRN" term.* This level of protection would be needed for medical receivers and medical treatment personnel where CBRN incident victims self-present at a medical facility, or the victims have not been decontaminated or only partially decontaminated prior to transport to a medical facility. This [C]BRN protection is not addressed by the single-use garments covered in NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*. The new requirements focus on full ensembles that are subject to multiple uses prior to use during a CBRN incident.

- (4) New criteria for head protection to establish protection requirements for impact hazards at emergency sites, and some guidance in the annex provided to also address prevention of trauma to emergency medical personnel traveling inside vehicles.
- (5) New category of footwear to address the physical environments for first receivers at hospitals or other health care facilities.
- (6) Revised criteria for footwear covers to address performance properties consistent with expected use, such as abrasion resistance of sole materials.
- (7) New classification and performance requirements for eye and face protection devices. The new system segregates the different types of eye/face protection into “single-use” and “reusable” devices, and a separate category of medical face masks that are frequently used by emergency services responders during emergency medical care.
- (8) Revision of requirements for cleaning glove performance to eliminate conflicting criteria.
- (9) New optional high-visibility markings criteria for emergency responder protective garments; these optional criteria are consistent with ANSI 107, *Standard on High-Visibility Safety Apparel*.

In addition to the principal changes, a number of clarifications and improvements were made to ensure consistency of requirements throughout the standard.

The fourth (2008) edition was issued by the NFPA Standards Council with an effective date of December 31, 2007.

This fifth (2013) edition of NFPA 1999 is a complete revision of the document that includes editorial changes, updates to referenced publications, and new or revised definitions for *gusset*, *tongue*, *interface component*, and *manufacturer*.

The 2013 edition has removed the puncture resistance test two and the impact and compression resistance test. Revisions to the abrasion test, slip resistance test, footwear upper materials testing, cut resistance test, washing and drying procedures, and chemical permeation resistance test are also included. This edition also features a new section on work glove test areas.

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Committee Scope: This Committee shall have primary responsibility for documents on the design, performance, testing, and certification of protective clothing and protective equipment manufactured for fire and emergency services organizations and personnel, to protect against exposures encountered during emergency incident operations. This Committee shall also have the primary responsibility for documents on the selection, care, and maintenance of such protective clothing and protective equipment by fire and emergency services organizations and personnel.



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Additionally, this committee shall have primary responsibility for documents on the selection, care, and maintenance of emergency medical protective clothing and protective equipment by fire and emergency services organizations and personnel.

Contents

Chapter 1 Administration	1999- 8	Chapter 7 Performance Requirements	1999-33
1.1 Scope	1999- 8	7.1 Emergency Medical Garment Performance Requirements	1999-33
1.2 Purpose	1999- 8	7.2 Emergency Medical Glove Performance Requirements	1999-34
1.3 Application	1999- 9	7.3 Emergency Medical Eye and Face Protection Device Performance Requirements	1999-35
1.4 Units	1999- 9	7.4 Emergency Medical Footwear Performance Requirements	1999-36
Chapter 2 Referenced Publications	1999- 9	7.5 Multiple-Use Emergency Medical Helmet Performance Requirements	1999-37
2.1 General	1999- 9	7.6 Multiple-Use Emergency Medical [C]BRN Protective Ensembles Performance Requirements	1999-37
2.2 NFPA Publications	1999- 9		
2.3 Other Publications	1999- 9		
2.4 References for Extracts in Mandatory Sections. (Reserved)	1999-11		
Chapter 3 Definitions	1999-11	Chapter 8 Test Methods	1999-38
3.1 General	1999-11	8.1 Sample Preparation Procedures	1999-38
3.2 NFPA Official Definitions	1999-11	8.2 Liquidtight Integrity Test One	1999-40
3.3 General Definitions	1999-11	8.3 Biopenetration Test One	1999-40
Chapter 4 Certification	1999-14	8.4 Tensile Strength Test	1999-41
4.1 General	1999-14	8.5 Burst Strength Test	1999-42
4.2 Certification Program	1999-14	8.6 Puncture Propagation Tear Resistance Test	1999-42
4.3 Inspection and Testing	1999-15	8.7 Tear Resistance Test One	1999-42
4.4 Annual Verification of Product Compliance	1999-16	8.8 Seam Breaking Strength Test	1999-42
4.5 Manufacturer's Quality Assurance Program	1999-20	8.9 Liquidtight Integrity Test Two	1999-43
4.6 Hazards Involving Compliant Product ...	1999-20	8.10 Biopenetration Test Two	1999-43
4.7 Manufacturers' Investigation of Complaints and Returns	1999-21	8.11 Ultimate Tensile Strength Test	1999-44
4.8 Manufacturers' Safety Alert and Product Recall Systems	1999-21	8.12 Ultimate Elongation Test	1999-44
Chapter 5 Product Labeling and Information	1999-21	8.13 Puncture Resistance Test One	1999-44
5.1 Product Label Requirements for Emergency Medical Protective Clothing Items	1999-21	8.14 Dexterity Test One	1999-45
5.2 User Information	1999-25	8.15 Protein Content Test	1999-45
Chapter 6 Design Requirements	1999-26	8.16 Visual Acuity/Fogging Resistance Test	1999-46
6.1 Emergency Medical Protective Garment Design Requirements	1999-26	8.17 Liquidtight Integrity Test Three	1999-46
6.2 Emergency Medical Glove Design Requirements	1999-27	8.18 Cut Resistance Test	1999-47
6.3 Emergency Medical Eye and Face Protection Device Design Requirements	1999-28	8.19 Abrasion Resistance Test One	1999-48
6.4 Emergency Medical Footwear Design Requirements	1999-31	8.20 Slip Resistance Test	1999-48
6.5 Multiple-Use Emergency Medical Helmet Design Requirements	1999-32	8.21 Eyelet and Stud Post Attachment Test	1999-48
6.6 Multiple-Use Emergency Medical [C]BRN Protective Ensemble Design Requirements	1999-32	8.22 Corrosion Resistance Test	1999-49
		8.23 Overall Liquid Integrity Test Four	1999-49
		8.24 Chemical Permeation Resistance Test	1999-50
		8.25 Abrasion Resistance Test Two	1999-50
		8.26 Dexterity Test Two	1999-51
		8.27 Grip Test	1999-51
		8.28 Moisture Vapor Transmission Rate Test	1999-52
		8.29 Overall Liquid Integrity Test Three	1999-52
		8.30 Tactility Test	1999-52
		8.31 Water Absorption Resistance Test	1999-53
		8.32 Total Heat Loss Test	1999-54
		8.33 Label Durability and Legibility Test	1999-54
		8.34 Particle Inward Leakage Test	1999-54



8.35 Overall Ensemble Liquid Penetration Test	1999-56	8.41 Retention System Test	1999-61
8.36 Biopenetration Resistance Test Three	1999-56	8.42 Goggle and Headlamp Clip Attachment Test	1999-62
8.37 Retroreflectivity and Fluorescence Test Following Laundering	1999-58	Annex A Explanatory Material	1999-64
8.38 Tear Resistance Test Two	1999-59	Annex B Informational References	1999-76
8.39 Flammability Test	1999-59	Index	1999-77
8.40 Suspension System Retention Test	1999-60		

NFPA 1999**Standard on****Protective Clothing and Ensembles for
Emergency Medical Operations**

The title of NFPA 1999 was revised by a tentative interim amendment (TIA). See page 1.

2013 Edition

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Changes other than editorial are indicated by a vertical rule beside the paragraph, table, or figure in which the change occurred. These rules are included as an aid to the user in identifying changes from the previous edition. Where one or more complete paragraphs have been deleted, the deletion is indicated by a bullet (•) between the paragraphs that remain.

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

Chapter 1 Administration

Subsections 1.1.2 and 1.2.2 were added by a tentative interim amendment (TIA). See page 1.

1.1 Scope.

1.1.1* This standard shall specify the minimum design, performance, testing, documentation, and certification requirements for new single-use and new multiple-use emergency medical operations protective clothing, including garments, helmets, gloves, footwear, and face protection devices, used by emergency medical responders prior to arrival at medical care facilities, and used by medical first receivers at medical care facilities during emergency medical operations.

1.1.2 This standard shall also specify additional minimum design, performance, testing, documentation, and certification as requirements for single-use and multiple-use emergency medical protective ensembles comprising the protective clothing items described in 1.1.1 for protection from airborne and liquid-borne pathogens.

1.1.3* This standard shall also specify additional minimum design, performance, testing, documentation, and certification as requirements for multiple exposure use emergency medical protective ensembles that provide limited protection from specified [C]BRN terrorism agents.

1.1.4* This standard shall not be interpreted as specifying requirements for protection from all CBRN terrorism agents, from all radiological agents, from hazardous chemicals, from flammable or explosive atmospheres, or from thermal hazards.

1.1.5* Other than for emergency medical protective ensembles that are certified as compliant with the [C]BRN requirements of this standard, this standard shall not be interpreted as specifying requirements for respiratory protection, and protection from airborne pathogens.

1.1.6 Certification of all emergency medical ensemble elements and protective clothing items, and medical care facility ensemble elements and protective clothing items as compliant with the requirements of this standard shall not preclude certification to additional appropriate standards where the ensemble elements or protective clothing items meet all applicable requirements of each standard.

1.1.7* This standard shall not be construed as addressing all of the safety concerns associated with the use of compliant emergency medical operations protective clothing for the protection of their personnel. It shall be the responsibility of the persons and organizations that use this standard to conduct testing of protective clothing to establish safety and health practices and determine the applicability of regulatory limitations prior to using this standard for any designing, manufacturing, and testing.

1.1.8 This standard shall not be construed as addressing all of the safety concerns, if any, associated with the use of this standard by testing facilities. It shall be the responsibility of the persons and organizations that use this standard to conduct testing of protective clothing and ensembles to establish safety and health practices and determine the applicability of regulatory limitations prior to using this standard for any designing, manufacturing, and testing.

1.1.9* This standard shall not specify requirements for any accessories that could be attached to the certified product but are not necessary for the certified product to meet the requirements of this standard.

1.1.10 Nothing herein shall restrict any jurisdiction or manufacturer from exceeding these minimum requirements.

1.2 Purpose.

1.2.1* The purpose of this standard shall be to establish a minimum level of protection from contact with blood and body fluid-borne pathogens for personnel performing patient care during emergency medical operations.

1.2.2 The purpose of this standard shall also be to establish a minimum level of whole body protection for emergency services personnel and medical first receivers from airborne and liquid-borne pathogens.

1.2.3 The purpose of this standard shall also be to establish a minimum level of protection for emergency services personnel from specified [C]BRN terrorism agents in liquid splash and particulate environments during [C]BRN terrorism incidents.

1.2.4 To achieve these purposes, this standard shall establish for emergency medical responders and medical first receivers the minimum requirements for upper and lower torso, head, hands, foot, and face protection devices to minimize skin and mucous membrane contact with body fluid-borne pathogens, and from the selected [C]BRN agents where the optional [C]BRN protection is specified.

1.2.5 Controlled laboratory tests used to determine compliance with the performance requirements of this standard shall



not be deemed as establishing performance levels for all situations to which personnel can be exposed.

1.2.6* This standard shall not be interpreted or used as a detailed manufacturing or purchase specification but shall be permitted to be referenced in purchase specifications as minimum requirements.

1.3 Application.

1.3.1* This standard shall apply to the design, performance, testing, and certification of new emergency medical garments; emergency medical examination gloves; emergency medical helmets; emergency medical cleaning/utility gloves; emergency medical work gloves; emergency medical facemasks; emergency medical face protection devices; emergency medical footwear and footwear covers; medical care facility footwear; and single-use and multiple-use emergency protective ensembles, and shall apply to ensembles and ensemble elements for the additional [C]BRN protection from specified biological and radiological terrorism agents.

1.3.2 This edition of NFPA 1999 shall not apply to any emergency medical operations protective clothing manufactured to previous editions of this standard.

1.3.3 This standard shall not apply to any emergency medical operations protective clothing manufactured to the requirements of any other standard.

1.3.4* Other than the certification of emergency medical protective ensembles to the single-use and multiple-use, and [C]BRN ensemble requirements of this standard, this standard shall not apply to respiratory protection in emergency medical operations as such requirements are specified by NIOSH in 42 CFR 84, and by OSHA in 29 CFR 1910.134 and 29 CFR 1910.1030.

1.3.5 This standard shall not apply to protection from ionizing radiation, protection from all biological terrorism agents, or protection from all weapons of mass destruction.

1.3.6* This standard shall not apply to protective clothing for chemical terrorism incidents as such requirements are specified in NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*.

1.3.7 This standard shall not apply to the use of or conditions of use for emergency medical protective clothing and ensembles by emergency medical responders and medical first receivers.

1.3.8 This standard shall not apply to any accessories that could be attached to the certified product, before or after purchase, but are not necessary for the certified product to meet the requirements of this standard.

1.4 Units.

1.4.1 In this standard, values for measurement are followed by an equivalent in parentheses, but only the first stated value shall be regarded as the requirement.

1.4.2 Equivalent values in parentheses shall not be considered as the requirement as these values are approximate.

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

NFPA 1581, *Standard on Fire Department Infection Control Program*, 2010 edition.

NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Incidents*, 20123 edition.

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

NFPA 1991, *Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies*, 2005 edition.

NFPA 1992, *Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies*, 2012 edition.

NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*, 2012 edition.

2.3 Other Publications.

2.3.1 AATCC Publications. American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

AATCC 42, *Water Resistance: Impact Penetration Test*, 2007.

AATCC 61, *Colorfastness to Laundering, Home and Commercial: Accelerated*, 2010.

AATCC 70, *Test Method for Water Repellency: Tumble Jar Dynamic Absorption Test*, 2010.

2.3.2 ANSI Publications. American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036.

ANSI/ISEA 107, *High-Visibility Safety Apparel and Headwear*, 2010.

ANSI Z87.1, *Occupational and Educational Personal Eye and Face Protection Devices*, 2010.

ANSI/ISEA Z89.1, *Standard for Industrial Head Protection*, 2009.

2.3.3 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM B 117, *Standard Practice for Operating Salt Spray (Fog) Apparatus*, 2009.

ASTM D 412a, *Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers — Tension*, 2006 ae2.

ASTM D 573, *Standard Test Method for Rubber-Deterioration in an Air Oven*, 2010.

ASTM D 1230, *Standard Test Method for Flammability of Apparel Textiles*, 2010.

ASTM D 1683, *Standard Test Method for Failure in Sewn Seams of Woven Apparel Fabrics*, 2011.

ASTM D 1776, *Standard Practice for Conditioning and Testing Textiles*, 2008 e1.

ASTM D 2582, *Standard Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheet*, 2009.

ASTM D 3787, *Method for Bursting Strength of Textiles — Constant-Rate-of-Traverse (CRT) Ball Burst Test*, 2011.

ASTM D 3884, *Standard Test Method for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method)*, 2009.

ASTM D 4157, *Standard Test Method for Abrasion Resistance of Textile Fabrics (Oscillatory Cylinder Method)*, 2010.

ASTM D 4966, *Standard Test Method for Abrasion Resistance of Textile Fabrics (Martindale Abrasion Test Method)*, 2010.

ASTM D 5034, *Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)*, 2009.

ASTM D 5151, *Standard Test Method for Detection of Holes in Medical Gloves*, 2006.

ASTM D 5169, *Standard Test Method for Shear Strength (Dynamic Method) of Hook and Loop Touch Fasteners*, 2010.

ASTM D 5170, *Standard Test Method for Peel Strength ("T" Method) of Hook and Loop Touch Fasteners*, 2010.

ASTM D 5587, *Standard Test Method for the Tearing of Fabrics by Trapezoid Procedure*, 2008.

ASTM D 5712, *Standard Test Method for Analysis of Aqueous Extractable Protein in Natural Rubber and Its Products Using the Modified Lowry Method*, 2010.

ASTM D 5733, *Standard Test Method for Tearing Strength of Nonwoven Fabrics by the Trapezoid Procedure*, 1999.

ASTM E96, *Standard Test Methods for Water Vapor Transmission of Materials*, 2013.

ASTM E 809, *Standard Practice for Measuring Photometric Characteristics of Retroreflectors*, 2008.

ASTM E 991, *Standard Practice for Color Measurement of Fluorescent Specimens*, 2011.

ASTM E 1164, *Standard Practice for Obtaining Spectrophotometric Data for Object Color Evaluation*, 2009 a.

ASTM E 2152, *Standard Practice for Computing the Colors of Fluorescent Objects from Bispectral Photometric Data*, 2012.

ASTM E 2153, *Standard Practice for Obtaining Bispectral Photometric Data for Evaluation of Fluorescent Color*, 2011.

ASTM F 392, *Standard Test Method for Flex Durability of Flexible Barrier Materials*, 2011.

ASTM F 739, *Standard Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids or Gases Under Conditions of Continuous Contact*, 1999a.

ASTM F 1154, *Standard Practice for Qualitatively Evaluating the Comfort, Fit, Function, and Integrity of Chemical Protective Suit Ensembles*, 2010.

ASTM F 1342, *Standard Test Method for Protective Clothing Material Resistance to Puncture*, 2005.

ASTM F 1359, *Standard Test Method for Liquid Penetration Resistance Integrity of Protective Clothing or Protective Ensembles Under a Shower Spray While on a Mannequin*, 2007.

ASTM F 1671, *Standard Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Blood-Borne Pathogens Using Phi-X174 Bacteriophage Penetration as a Test System*, 2007.

ASTM F 1790, *Test Methods for Measuring Cut Resistance of Materials Used in Protective Clothing*, 2005.

ASTM F 1862, *Standard Test Method for Resistance of Medical Face Masks to Penetration by Synthetic Blood (Horizontal Projection of Fixed Volume at a Known Velocity)*, 2007.

ASTM F 1868, *Standard Test Method for Thermal and Evaporative Resistance of Clothing Materials Using a Sweating Hot Plate*, 2009.

ASTM F 2010, *Standard Test Method for Evaluation of Glove Effects on Wearer Hand Dexterity Using a Modified Pegboard Test*, 2010.

ASTM F 2100, *Standard Specification for Performance of Materials Used in Medical Face Masks*, 2011.

ASTM F 2413, *Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear*, 2011.

2.3.4 EN Publications. European Committee for Electrotechnical Standardization, (CENELEC), 17, Avenue Marnix, B-1000 Brussels, Belgium.

EN 420, *General requirements for gloves*, 2003.

EN 455-2, *Medical gloves for single use — Part 2: Requirements and testing for physical properties*, 2006.

2.3.5 FIA Publications. Footwear Industries of America, 1420 K Street, NW, Suite 600, Washington, DC 20005.

FIA Standard 1209, *Whole Shoe Flex*, 1984.

2.3.6 ISO Publications. International Organization for Standardization, 1 ch. De la Voie-Creuse, Case postale 56, CH 1211 Geneva 20, Switzerland.

ISO 27, *Guidelines for corrective action to be taken by a certification body in the event of misuse of its mark of conformity*, 1983.

ISO Guide 62, *General requirements for bodies operating assessment and certification/registration of quality systems*, 1996.

ISO 65, *General requirements for bodies operating product certification systems*, 1996.

ISO 2859-1, *Sampling procedures for inspection by attributes. Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection*, 1999.

ISO 4649, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using rotating cylindrical drum device*, 2010.

ISO 9001, *Quality management systems — Requirements*, 2000.

ISO 13287, *Personal Protective Equipment — Footwear — Test Method for Slip Resistance*, 2006.

ISO 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*, 2004.

ISO/IEC 17021, *Conformity assessment — Requirements for bodies providing audit and certification of management systems*, 2011.

ISO 17025, *General requirements for the competence of testing and calibration laboratories*, 2005.

2.3.7 Psychological Corporation Publications. Psychological Corporation, 555 Academic Court, San Antonio, TX 78204.

Crawford Small Parts Dexterity Test, 1981.

2.3.8 U.S. Government Publications. U.S. Government Printing Office, Washington, DC 20402.

Title 29, Code of Federal Regulations, Part 1910.132, "General Requirements of Subpart I, Personal Protective Equipment."

Title 29, Code of Federal Regulations, Part 1910.134, "Respiratory Protection."

Title 29, Code of Federal Regulations, Part 1910.1030, "Protecting Health Care Workers from Occupational Exposure to Blood-Borne Pathogens."



Title 42, Code of Federal Regulations, Part 84, "Approval of Respiratory Protective Devices."

Statement of Standard for NIOSH CBRN APR Testing, 2003.

Statement of Standard for NIOSH CBRN PAPR Testing, 2006.

Statement of Standard for NIOSH CBRN SCBA Testing, 2004.

2.3.9 Department of Defense Publications. Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

A-A-55126B, *Commercial Item Description: Fastener Tapes, Hook and Pile, Synthetic*, 2006.

A-A-55634A, *Commercial Item Description: Zippers (Fasteners, Slide, Interlocking)*, 2004.

2.3.10 Other Publications.

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

2.4 References for Extracts in Mandatory Sections. (Reserved)

Chapter 3 Definitions

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

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

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

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

3.2.4* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Shall. Indicates a mandatory requirement.

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

3.2.7 Standard. A document, the main text of which contains only mandatory provisions using the word "shall" to indicate

requirements and which 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 *Manual of Style for NFPA Technical Committee Documents*.

3.3* General Definitions.

Multiple definitions were added and others were revised by a tentative interim amendment (TIA). See page 1.

3.3.1 Accessories. An item, or items, that are attached to the certified product that are not necessary to meet the requirements of the standard.

3.3.2 Afterflame. Persistent flaming of a material after the ignition source has been removed.

3.3.3 Afterflame Time. The length of time for which a material continues to flame after the ignition source has been removed.

3.3.4 Arch. The bottom curve of the foot from the heel to the ball.

3.3.5 Barrier Layer. The layer of garment material, glove material, footwear material, or face protection device material designated as providing body fluid-borne pathogen resistance.

3.3.6 Biological Terrorism Agents. Liquid or particulate agents that can consist of biologically derived toxin or pathogen to inflict lethal or incapacitating casualties.

3.3.7 Body Fluid-Borne Pathogen. An infectious bacterium or virus carried in human, animal, or clinical body fluids organs, or tissue.

3.3.8 Body Fluids. Fluids that are produced by the body, including, but not limited to, blood, semen, mucus, feces, urine, vaginal secretions, breast milk, amniotic fluid, cerebrospinal fluid, synovial fluid, **sweat, vomit**, and pericardial fluid.

3.3.9 Brim. A part of the shell of the helmet that extends around the entire circumference of the helmet.

3.3.10 CBRN. An acronym for chemicals, biological agents, and radiological particulates hazards. (See also 3.3.13, *CBRN Terrorism Agents*.)

3.3.11 [C]BRN. A modification to CBRN; used in this standard to indicate the CBRN protection provided by the [C]BRN requirements does not include chemical CBRN hazards, but *only applies to biological agents and radiological particulates* CBRN hazards. (See also 3.3.13, *CBRN Terrorism Agents*.)

3.3.12* CBRN Barrier Layer. The part of a composite that is intended to provide a barrier of protection against CBRN terrorism agents.

3.3.13* CBRN Terrorism Agents. Chemicals, biological agents, and radiological particulates that could be released as an act of terrorism. [C]BRN terrorism agents include only biological agents and radiological particulates. (See also 3.3.6, *Biological Terrorism Agents* and 3.3.72, *Radiological Particulate Terrorism Agents*.)

3.3.14 Certification/Certified. A system whereby a certification organization determines that a manufacturer has demonstrated the ability to produce a product that complies with the requirements of this standard, authorizes the manufacturer to

use a label on listed products that comply with the requirements of this standard, and establishes a follow-up program conducted by the certification organization as a check on the manufacturer to determine compliance with the requirements of this standard.

3.3.15 Certification Organization. An independent, third-party organization that determines product compliance with the requirements of this standard with a labeling/listing/follow-up program.

3.3.16 Combined Performance Material. A retroreflective material that is also a fluorescent material.

3.3.17 Compliance/Compliant. Meeting or exceeding all applicable requirements of this standard.

3.3.18 Compliant Product. Product that is covered by this standard and has been certified as meeting all applicable requirements of this standard that pertain to the product.

3.3.19 Component(s). Any material, part, or subassembly used in the construction of the compliant product.

3.3.20 Crown. The portion of the helmet that covers the head above the reference plane.

3.3.21 Crown Straps. The part of the helmet suspension that passes over the head.

3.3.22 Elements. See 3.3.37, Ensemble Elements.

3.3.23 Emergency Medical [C]BRN Protective Ensemble. An ensemble consisting of garment elements, glove elements, footwear elements, and a CBRN respirator that is certified to meet the requirements for protection from specific [C]BRN terrorism agents.

3.3.24* Emergency Medical Cleaning/Utility Glove. Multipurpose glove that provides a barrier against body fluids, cleaning fluids, and disinfectants and limited physical protection to the wearer.

3.3.25 Emergency Medical Examination Glove. An element or item of emergency medical protective ensemble or protective clothing that is designed and configured to provide barrier protection to the wearer's hand to at least the wrist. (See 3.3.35, *Emergency Medical Work Glove*.)

3.3.26* Emergency Medical Eye and Face Protection Device. An item of emergency medical protective clothing that is designed and configured to provide barrier protection to the wearer's eyes, face, or both eyes and face.

3.3.27* Emergency Medical Facemask. An item of emergency medical protective clothing that is designed and configured to provide protection to the wearer's face including the mucous membrane area of the wearer's nose and mouth.

3.3.28 Emergency Medical Footwear. An element or item of emergency medical protective ensemble or protective clothing that is designed and configured to provide barrier protection to the wearer's feet.

3.3.29 Emergency Medical Footwear Cover. An element or item of emergency medical protective ensemble or protective clothing designed and configured to be worn over standard footwear to provide barrier and limited physical protection to the wearer's feet.

3.3.30* Emergency Medical Garment. An element or item of emergency medical protective ensemble or protective clothing designed and configured as a single garment or an assembly of multiple garments to provide barrier protection to the

wearer's upper and lower torso, excluding the hands, face, and feet.

3.3.31 Emergency Medical Helmet. An item of emergency medical protective clothing designed and configured to provide protection to the wearer's head.

3.3.32* Emergency Medical Operations. Provision of emergency patient care and transportation prior to arrival at a medical care facility by emergency medical responders, emergency patient care by medical first receivers at a medical care facility, and body recovery by emergency medical responders.

3.3.33* Emergency Medical Protective Clothing. Items of both single-use and multiple-use protective clothing that provide limited physical protection and barrier protection against body fluid-borne pathogen contact with the wearer's body during delivery of emergency patient care and other emergency medical functions. (See 3.3.24, *Emergency Medical Cleaning/Utility Glove*, 3.3.25, *Emergency Medical Examination Glove*, 3.3.26, *Emergency Medical Eye and Face Protection Device*, 3.3.27, *Emergency Medical Facemask*, 3.3.28, *Emergency Medical Footwear*, 3.3.29, *Emergency Medical Footwear Cover*, 3.3.30, *Emergency Medical Garment*, 3.3.31, *Emergency Medical Helmet*, and 3.3.35, *Emergency Medical Work Glove*.)

3.3.34 Emergency Medical Responders. Emergency services response personnel who perform emergency medical operations prior to arrival at a medical care facility.

3.3.35 Emergency Medical Work Glove. An element or item of emergency medical protective ensemble or protective clothing that is designed and configured to provide physical and barrier protection to the wearer's hand and wrist. (See also 3.3.25, *Emergency Medical Examination Glove*.)

3.3.36 Emergency Patient Care. Treatment of patients by emergency medical responders or medical first receivers including first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other medical procedures that occur prior to arrival at a medical care facility, or after arrival at a medical care facility.

3.3.37 Ensemble Elements. The compliant products that provide protection to the upper and lower torso, arms, legs, head, hands, and feet.

3.3.38 Examination Glove. An abbreviated term for emergency medical examination glove. (See also 3.3.25, *Emergency Medical Examination Glove*.)

3.3.39 Face Protection Device. An abbreviated term for emergency medical face protection device. (See also 3.3.26, *Emergency Medical Eye and Face Protection Device*.)

3.3.40 Fluorescence. A process by which radiant flux of certain wavelengths is absorbed and reradiated non-thermally in other, usually longer, wavelengths.

3.3.41 Follow-Up Program. The sampling, inspections, tests, or other measures conducted by the certification organization on a periodic basis to determine the continued compliance of labeled and listed products that are being produced by the manufacturer to the requirements of this standard.

3.3.42 Footwear. An abbreviated term for emergency medical footwear (See also 3.3.28, *Emergency Medical Footwear*.)

3.3.43 Footwear Cover. An abbreviated term for emergency medical footwear cover. (See also 3.3.29, *Emergency Medical Footwear Cover*.)



3.3.44 Garment. An abbreviated term for emergency medical garment. (See also 3.3.30, *Emergency Medical Garment*.)

3.3.45 Garment Closure. The garment component designed and configured to allow the wearer to enter (don) and exit (doff) the garment.

3.3.46 Garment Closure Assembly. The combination of the garment closure and the seam attaching the garment closure to the garment, excluding any protective flap or cover.

3.3.47 Garment Material. All material layers used in the construction of emergency medical garments other than patches, reinforcements, and visibility markings.

3.3.48 Glove. See 3.3.24, *Emergency Medical Cleaning/Utility Glove*; 3.3.25, *Emergency Medical Examination Glove*; and 3.3.35, *Emergency Medical Work Glove*.

3.3.49 Glove Body. The part of the glove that extends from the tip of the fingers to the wrist crease or to a specified distance beyond the wrist crease.

3.3.50 Glove Material. All material layers used in the construction of gloves.

3.3.51* Gusset. The part of the protective footwear that is a relatively flexible material joining the footwear upper (quarter) and the tongue, which is intended to provide expansion of the footwear front to enable donning of the footwear while maintaining continuous moisture integrity of the footwear.

3.3.52 Hazardous Materials. Any solid, liquid, gas, or mixture thereof that can potentially cause harm to the human body through respiration, ingestion, skin absorption, or contact.

3.3.53 Headform. A device that simulates the configuration of the human head.

3.3.54 Helmet. See 3.3.31, *Emergency Medical Helmet*.

3.3.55 Helmet Shell. A helmet without the suspension system, accessories, and fittings.

3.3.56 Insole. The inner part of the protective footwear upon which the foot rests and that conforms to the bottom of the foot.

3.3.57 Interface Component(s). Any material, part, or subassembly used in the construction of the compliance product that provides limited protection to interface areas.

3.3.58 Manufacturer. The entity that directs and controls any of the following: compliant product design, compliant product manufacturing, or compliant product quality assurance; or the entity that assumes the liability for the compliant product or provides the warranty for the compliant product.

3.3.59* Medical Care Facility Footwear. An item of emergency medical protective clothing that is designed and configured to provide protection to the wearer's feet and ankles at medical care facilities.

3.3.60 Medical First Receivers. Clinicians and other medical care staff at a medical care facility who have a role in emergency patient care including initial triage, decontamination, and treatment for patients who are delivered by emergency medical services or who self-present at a medical care facility, and those staff whose roles support these functions, e.g., security, set up, and patient tracking.

3.3.61 Medical Responders. See 3.3.34, *Emergency Medical Responders*.

3.3.62 Model. The collective term used to identify a group of individual elements or items of the same basic design and components from a single manufacturer produced by the same manufacturing and quality assurance procedures that are covered by the same certification.

3.3.63* Multiple Use. Items that are designed to be repeatedly worn and used for protection during emergency medical operations.

3.3.64* Multiple-Use Emergency Medical Protective Ensemble. Multiple elements of compliant protective clothing and equipment providing full body coverage, intended for multiple use, that when worn together provide protection from some risks, but not all risks, of emergency medical operations.

3.3.65 Nape Device. A device located below the Bitragion Inion Arc used to aid in helmet retention.

3.3.66 Outer Garment. A secondary garment worn over the ensemble garment element for the purpose of providing [C]BRN protection.

3.3.67 Outer Glove. A secondary glove worn over the glove ensemble element for the purpose of providing [C]BRN protection.

3.3.68 Package. The wrapping or enclosure directly containing a glove or face protection device.

3.3.69 Package Product Label. The product label that is printed on or attached to a package containing one or more compliant products. (See also 3.3.71, *Product Label*.)

3.3.70 Peak. An integral part of the helmet shell extending forward over the eyes only.

3.3.71* Product Label. A label or marking affixed to each compliant garment, glove, or face protection device by the manufacturer. (See also 3.3.69, *Package Product Label*.)

3.3.72* Radiological Particulate Terrorism Agents. Particles that emit ionizing radiation in excess of normal background levels, used to inflict lethal or incapacitating casualties, generally on a civilian population as a result of terrorist attack.

3.3.73 Retroreflection. The reflection of light in which the reflected rays are preferentially returned in the direction close to the opposite of the direction of the incident rays, with this property being maintained over wide variations of the direction of the incident rays.

3.3.74 Retroreflective Markings. A material that reflects and returns a relatively high proportion of light in a direction in the direction close to the direction from which it came.

3.3.75 Safety Alert. The action by which a manufacturer identifies a specific compliant product or a compliant product component, provides notice to users of the compliant product, and informs the marketplace and distributors of potential safety concerns regarding the product or component.

3.3.76 Sample. The ensemble, element, item, component, or composite that is conditioned for testing. (See also 3.3.81, *Specimen*.)

3.3.77 Seam. Any permanent attachment of two or more materials in a line formed by joining the separate material pieces.

3.3.78 Shell. A helmet without the suspension system, accessories, and fittings.

3.3.79* Single-Use Emergency Medical Protective Ensemble. Multiple elements of compliant protective clothing and equipment providing full body coverage, intended for a single use, that when worn together provide protection from some risks, but not all risks, of emergency medical operations.

3.3.80* Single-Use Item. Items that are designed to be used one time and then disposed of.

3.3.81 Specimen. The conditioned element, item, component, or composite that is tested. Specimens are taken from samples. (See also 3.3.76, *Sample*.)

3.3.82 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.

3.3.83 Storage Life. The life expectancy of protective clothing and ensemble elements from the date of manufacture when it is only stored and inspected and has undergone proper care and maintenance in accordance with the manufacturer's instructions, but not used, donned, doffed, or repaired.

3.3.84 Terrorism Agents. See 3.3.13, CBRN Terrorism Agents.

3.3.85* Tongue. The part of the protective footwear that is provided for protective footwear with a closure that extends from the vamp to the top line of the footwear between sides of the footwear upper and is exposed to the exterior environment when the footwear is correctly donned.

3.3.86 Trace Number. A code that can be used to retrieve the production history of a product (e.g., a lot or serial number).

3.3.87 Upper. That part of the protective footwear including, but not limited to, the toe, vamp, quarter, shaft, collar, and throat; but not including the sole with heel, puncture-resistant device, and insole.

3.3.88* Visibility Materials. Fluorescent and retroreflective materials used in the construction of garments to provide conspicuity for the purpose of providing both daytime and nighttime visibility of the wearer.

3.3.89 Wear Surface. A footwear term for the bottom of the sole, including the heel.

3.3.90 Work Glove. An abbreviated term for emergency medical work glove. (See also 3.3.35, *Emergency Medical Work Glove*.)

Chapter 4 Certification

4.1 General.

4.1.1 The process of certification for protective ensembles and ensemble elements as being compliant with NFPA 1999 shall meet the requirements of Section 4.1, General; Section 4.2, Certification Program; Section 4.3, Inspection and Testing; Section 4.4, Annual Verification of Product Compliance; Section 4.5, Manufacturers' Quality Assurance Program; Section 4.6, Hazards Involving Compliant Product; Section 4.7, Manufacturers' Investigation of Complaints and Returns; and Section 4.8, Manufacturers' Safety Alert and Product Recall Systems.

4.1.2 All compliant protective clothing items, protective ensembles, and ensemble elements that are labeled as being com-

pliant with this standard shall meet or exceed all applicable requirements specified in this standard and shall be certified.

4.1.2.1 The certification organization shall permit only the certification of complete [C]BRN protective ensembles that include protective garments, protective helmets, protective gloves, protective footwear, and interface components.

4.1.2.2 The certification organization shall further require that the [C]BRN protective ensemble or ensemble element manufacturer specify the respiratory protection for the ensemble.

4.1.3 All certification shall be performed by a certification organization that meets at least the requirements specified in Section 4.2, Certification Program, and that is accredited for personal protective equipment (PPE) in accordance with ISO 65, *General requirements for bodies operating product certification systems*. The accreditation shall be issued by an accreditation body operating in accordance with ISO 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*.

4.1.4 Manufacturers shall not claim compliance with portions or segments of the requirements of this standard and shall not use the NFPA name or the name or identification of this standard, NFPA 1999, in any statements about their respective product(s) unless the product(s) is certified as compliant to this standard.

4.1.5 All compliant protective ensembles and ensemble elements shall be labeled.

4.1.6 All compliant protective ensembles and ensemble elements shall be listed by the certification organization. The listing shall uniquely identify the certified product, for example, by style, model number, or part number.

4.1.7 All compliant protective ensembles and ensemble elements shall also have a product label that meets the requirements specified in Section 5.1, Product Label Requirements for Emergency Medical Protective Clothing Items.

4.1.8* The certification organization's label, symbol, or identifying mark shall be attached to the product label, shall be part of the product label, or shall be immediately adjacent to the product label.

4.1.9 The certification organization shall not issue any new certifications to the 2008 edition of this standard on or after the NFPA effective date for the 2013 edition, which is December 17, 2012.

4.1.10 The certification organization shall not permit any manufacturer to continue to label any protective clothing items that are certified as compliant with the 2008 edition of this standard on or after June 30, 2013.

4.1.11 The certification organization shall require manufacturers to remove all certification labels and product labels indicating compliance with the 2008 edition of this standard from all protective ensembles and ensemble elements that are under the control of the manufacturer on June 30, 2013, and the certification organization shall verify that this action is taken.

4.2 Certification Program.

4.2.1* The certification organization shall not be owned or controlled by manufacturers or vendors of the product being certified.



4.2.2 The certification organization shall be primarily engaged in certification work and shall not have a monetary interest in the product's ultimate profitability.

4.2.3 The certification organization shall be accredited for PPE in accordance with ISO 65, *General requirements for bodies operating product certification systems*. The accreditation shall be issued by an accreditation body operating in accordance with ISO 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*.

4.2.4 The certification organization shall refuse to certify products to this standard that do not comply with all applicable requirements of this standard.

4.2.5* The contractual provisions between the certification organization and the manufacturer shall specify that certification is contingent on compliance with all applicable requirements of this standard.

4.2.5.1 The certification organization shall not offer or confer any conditional, temporary, or partial certifications.

4.2.5.2 Manufacturers shall not be authorized to use any label or reference to the certification organization on products that are not compliant with all applicable requirements of this standard.

4.2.6 The certification organization shall have laboratory facilities and equipment available for conducting proper tests to determine product compliance.

4.2.6.1 The certification organization laboratory facilities shall have a program in place and functioning for calibration of all instruments, and procedures shall be in use to ensure proper control of all testing.

4.2.6.2 The certification organization laboratory facilities shall follow good practice regarding the use of laboratory manuals, form data sheets, documented calibration and calibration routines, performance verification, proficiency testing, and staff qualification and training programs.

4.2.7 The certification organization shall require the manufacturer to establish and maintain a quality assurance program that meets the requirements of Section 4.5, Manufacturer's Quality Assurance Program.

4.2.7.1* The certification organization shall require the manufacturer to have a product recall system specified in Section 4.8, Manufacturers' Safety Alert and Product Recall Systems, as part of the manufacturer's quality assurance program.

4.2.7.2 The certification organization shall audit the manufacturer's quality assurance program to ensure that the quality assurance program provides continued product compliance with this standard.

4.2.8 The certification organization and the manufacturer shall evaluate any changes affecting the form, fit, or function of the compliant product to determine its continued certification to this standard.

4.2.9* The certification organization shall have a follow-up inspection program of the manufacturing facilities of the compliant product with at least two random and unannounced visits per 12-month period.

4.2.9.1 As part of the follow-up inspection program, the certification organization shall select sample compliant product at random from the manufacturer's production line, from the manufacturer's in-house stock, or from the open market.

4.2.9.2 The sample product shall be evaluated by the certification organization to verify the product's continued compliance in order to assure that the materials, components, and manufacturing quality assurance systems are consistent with the materials, components, and manufacturing quality assurance that were inspected and tested by the certification organization during certification and recertification.

4.2.9.3 The certification organization shall be permitted to conduct specific testing to verify the product's continued compliance.

4.2.9.4 For products, components, and materials where prior testing, judgment, and experience of the certification organization have shown the result to be in jeopardy of not complying with this standard, the certification organization shall conduct more frequent testing of the sample product, components, and materials acquired in accordance with 4.2.9.1 against the applicable requirements of this standard.

4.2.10 The certification organization shall have in place a series of procedures, as specified in Section 4.6, Hazards Involving Compliant Product, that address report(s) of situation(s) in which a compliant product is subsequently found to be hazardous.

4.2.11 The certification organization's operating procedures shall provide a mechanism for the manufacturer to appeal decisions. The procedures shall include the presentation of information from both sides of a controversy to a designated appeals panel.

4.2.12 The certification organization shall be in a position to use legal means to protect the integrity of its name and label. The name and label shall be registered and legally defended.

4.3 Inspection and Testing.

4.3.1 For both initial certification and recertification of protective ensembles and ensemble elements, the certification organization shall conduct both inspection and testing as specified in this section.

4.3.2 All inspections, evaluations, conditioning, and testing for certification or for recertification shall be conducted by a certification organization's testing laboratory that is accredited in accordance with the requirements of ISO 17025, *General requirements for the competence of calibration and testing laboratories*.

4.3.2.1 The certification organization's testing laboratory's scope of accreditation to ISO 17025, *General requirements for the competence of testing and calibration laboratories*, shall encompass testing of personal protective equipment.

4.3.2.2 The accreditation of a certification organization's testing laboratory shall be issued by an accreditation body operating in accordance with ISO 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*.

4.3.3 A certification organization shall be permitted to utilize conditioning and testing results conducted by a product or component manufacturer for certification or recertification provided the manufacturer's testing laboratory meets the requirements specified in 4.3.3.1 through 4.3.3.5.

4.3.3.1 The manufacturer's testing laboratory shall be accredited in accordance with the requirements of ISO 17025, *General requirements for the competence of testing and calibration laboratories*.

4.3.3.2 The manufacturer's testing laboratory's scope of accreditation to ISO 17025, *General requirements for the competence of testing and calibration laboratories*, shall encompass testing of personal protective equipment.

4.3.3.3 The accreditation of a manufacturer's testing laboratory shall be issued by an accreditation body operating in accordance with ISO 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*.

4.3.3.4 The certification organization shall approve the manufacturer's testing laboratory.

4.3.3.5 The certification organization shall determine the level of supervision and witnessing of the conditioning and testing for certification or recertification conducted at the manufacturer's testing laboratory.

4.3.4 Sampling levels for testing and inspection shall be established by the certification organization and the manufacturer to ensure a reasonable and acceptable reliability at a reasonable and acceptable confidence level that products certified to this standard are compliant, unless such sampling levels are specified herein.

4.3.5 Inspection by the certification organization shall include a review of all product labels to ensure that all required label attachments, compliance statements, certification statements, and other product information are at least as specified for the protective clothing element or item.

4.3.6 Inspection by the certification organization shall include an evaluation of any symbols and pictorial representations used on product labels or in user information, as permitted by 5.1.5, to ensure that the symbols are clearly explained in the product's user information package.

4.3.7 Inspection by the certification organization shall include a review of the user information required by Section 5.2 to ensure that the information has been developed and is available.

4.3.8 Inspection by the certification organization for determining compliance with the design requirements specified in Chapter 6 shall be performed on whole or complete products.

4.3.9 Testing to determine product compliance with the performance requirements specified in Chapter 7 shall be conducted by the certification organization in accordance with the specified testing requirements of Chapter 8.

4.3.9.1 Testing shall be performed on specimens representative of materials and components used in the actual construction of the protective ensemble and ensemble element.

4.3.9.2 The certification organization also shall be permitted to use sample materials cut from a representative product.

4.3.10 The certification organization shall not allow any modifications, pretreatment, conditioning, or other such special processes of the product or any product component prior to the product's submission for evaluation and testing by the certification organization.

4.3.11 The certification organization shall not allow the substitution, repair, or modification, other than as specifically permitted herein, of any product or any product component during testing.

4.3.12 The certification organization shall not allow test specimens that have been conditioned and tested for one

method to be reconditioned and tested for another test method unless specifically permitted in the test method.

4.3.13 The certification organization shall test ensemble elements with the specific ensemble(s) with which they are to be certified.

4.3.14 Any change in the design, construction, or material of a compliant product shall necessitate new inspection and testing to verify compliance to all applicable requirements of this standard that the certification organization determines can be affected by such change. This recertification shall be conducted before labeling the modified product as being compliant with this standard.

4.3.15 The manufacturer shall maintain all design and performance inspection and test data from the certification organization used in the certification of the manufacturer's compliant product. The manufacturer shall provide such data, upon request, to the purchaser or authority having jurisdiction.

4.4 Annual Verification of Product Compliance.

4.4.1 All individual elements of the protective ensemble that are labeled as being compliant with this standard shall undergo recertification on an annual basis. (See Table 4.4.1.) This recertification shall include the following:

- (1) Inspection and evaluation to all design requirements as required by this standard on all manufacturer models and components
- (2) Testing to all performance requirements as required by this standard on all manufacturer models and components within the following protocol:
 - (a) Where a test method incorporates testing both before and after the laundering precondition specified in 8.1.3 and the test generates quantitative results, recertification testing shall be limited to the conditioning that yielded the worst case test result during the initial certification for the model or component.
 - (b) Where a test method incorporates testing both before and after the laundering precondition specified in 8.1.3 and the test generates nonquantitative results, recertifications shall be limited to a single conditioning procedure in any given year. Subsequent annual recertifications shall cycle through the remaining conditioning procedures to ensure that all required conditionings are included over time.
 - (c) Where a test method requires the testing on three specimens, a minimum of one specimen shall be tested for annual recertification.
 - (d) Where a test method requires the testing of five or more specimens, a minimum of two specimens shall be tested for annual recertification.

4.4.2 Samples of manufacturer models and components for recertification acquired from the manufacturer or component supplier during random and unannounced visits as part of the follow-up inspection program in accordance with 4.2.9 shall be permitted to be used toward annual recertification.

4.4.3 The manufacturer shall maintain all design and performance inspection and test data from the certification organization used in the recertification of manufacturer models and components. The manufacturer shall provide such data, upon request, to the purchaser or authority having jurisdiction.

Table 4.4.1 was revised by a tentative interim amendment (TIA). See page 1.

Table 4.4.1 Initial Certification and Annual Recertification

Product	Test/Section Number	Time	Samples for Conditioning
Multiple-use emergency medical garments and ensembles	Design Requirements (6.1)	Annual	Garment or ensemble
	Liquidtight Integrity Test One (8.2)	Annual	Garment or ensemble
	Biopenetration Test One (8.3)	Annual	Garment
	Tensile Strength Test (8.4)	Annual	Garment
	Burst Strength (8.5)	Annual	Garment
	Puncture Propagation Tear Resistance Test (8.6)	Annual	Garment
	Tear Resistance Test One (8.7)	Annual	Garment
	Seam Breaking Strength Test (8.8)	Annual	Garment
	Water Absorption Resistance Test (8.31)	Annual	Garment
	Total Heat Loss Test (8.32)	Annual	1 m ² of composite materials
	Label Durability and Legibility Test (8.33)	Annual	Garment
	Corrosion Resistance Test (8.22)	Annual	Complete hardware items
	Retroreflectivity and Fluorescence Test (8.37)	Annual	Garment
	Flammability Test (8.39)	Annual	Garment
Single-use emergency medical garments and ensembles	Design Requirements (6.1)	Annual	Garment or ensemble
	Liquidtight Integrity Test One (8.2)	Annual	Garment or ensemble
	Biopenetration Test One (8.3)	Annual	Garment
	Tensile Strength Test (8.4)	Annual	Garment
	Burst Strength (8.5)	Annual	Initial certification: garment
	Puncture Propagation Tear Resistance Test (8.6)	Annual	Garment
	Tear Resistance Test One (8.7)	Annual	Garment
	Seam Breaking Strength Test (8.8)	Annual	Garment
	Moisture Vapor Transmission Rate Test (8.28)	Annual	1 m ² of composite materials
	Flammability Test (8.39)	Annual	Garment
Single-use emergency medical examination gloves	Design Requirements (6.2)	Annual	Gloves
	Liquidtight Integrity Test Two (8.9)	Annual	Gloves
	Biopenetration Test Two (8.10)	Annual	Gloves
	Ultimate Tensile Strength Test (8.11)	Annual	Gloves
	Ultimate Elongation Test (8.12)	Annual	Gloves
	Puncture Resistance Test One (8.13)	Annual	Gloves
	Dexterity Test One (8.14)	Annual	Gloves
	Protein Content Test (8.15)	Annual	Gloves
Single-use emergency medical cleaning/utility gloves	Design Requirements (6.2)	Annual	Gloves
	Liquidtight Integrity Test Two (8.9)	Annual	Gloves
	Biopenetration Test Two (8.10)	Annual	Gloves
	Chemical Permeation Resistance Test (8.24)	Annual	Glove Barrier Materials
	Ultimate Tensile Strength Test (8.11)	Annual	Gloves
	Puncture Resistance Test One (8.13)	Annual	Gloves or Glove composite swatches
	Cut Resistance Test (8.18)	Annual	Gloves or Glove composite swatches
	Abrasion Resistance Test Two (8.25)	Annual	Gloves or Glove composite swatches
	Dexterity Test Two (8.26)	Annual	Gloves
	Tactility Test (8.30)	Annual	Gloves
	Flammability Test (8.39)	Annual	Gloves or Glove composite swatches

Table 4.4.1 *Continued*

Product	Test/Section Number	Time	Samples for Conditioning
Multiple-use emergency medical work gloves	Design Requirements (6.2)	Annual	Gloves
	Overall Liquid Integrity Test Three (8.29)	Annual	Gloves
	Biopenetration Test One (8.3)	Annual	Gloves or Glove composite swatches
	Puncture Resistance Test One (8.13)	Annual	Gloves or Glove composite swatches
	Cut Resistance Test (8.18)	Annual	Gloves or Glove composite swatches
	Abrasion Resistance Test Two (8.25)	Annual	Gloves or Glove composite swatches
	Dexterity Test Two (8.26)	Annual	Gloves
	Grip Test (8.27)	Annual	Gloves
	Tactility Test (8.30)	Annual	Gloves
	Corrosion Resistance Test (8.22)	Annual	Complete hardware items
	Flammability Test (8.39)	Annual	Gloves or Glove composite swatches
Single-use emergency medical facemasks	Design Requirements (6.3)	Annual	Facemasks
	ASTM F 2100	Annual	Per ASTM F 2100
	Liquidtight Integrity Test Three (8.17)	Annual	Facemasks
	Visual Acuity/Fogging Resistance (8.16)	Annual	Facemasks
Single-use emergency medical eye and face protection devices	Design Requirements (6.3)	Annual	Eye and face protection devices
	Biopenetration Test One (8.3)	Annual	Eye and face protection devices
	Liquidtight Integrity Test Three (8.17)	Annual	Eye and face protection devices
	Visual Acuity/Fogging Resistance (8.16)	Annual	Eye and face protection devices
	Flammability Test (8.39)	Annual	Eye and face protection devices
Single-use emergency medical garment tests	See single-use garments.	Annual	Per single-use garment above
Multiple-use emergency medical eye and face protection devices	Design Requirements (6.3)	Annual	Eye and face protection devices
	ANSI Z87.1	Annual	Per ANSI Z87.1
	Liquidtight Integrity Test Three (8.17)	Annual	Eye and face protection devices
	Visual Acuity/Fogging Resistance (8.16)	Annual	Eye and face protection devices
	Corrosion Resistance Test (8.22)	Annual	Complete hardware items
Face protection devices	Design Requirements (6.3)	Annual	Face protection devices
	ASTM F 2100	Annual	Per ASTM F 2100
	Liquidtight Integrity Test Three (8.17)	Annual	Eye and face protection devices
	Biopenetration Test One (8.3)	Annual	Eye and face protection devices
	Flammability Test (8.39)	Annual	Eye and face protection devices
	Corrosion Resistance (8.22)	Annual	Complete hardware items
Single-use emergency medical footwear covers	Design Requirements (6.4)	Annual	Footwear covers
	Biopenetration Test One (8.3)	Annual	Footwear covers

Table 4.4.1 *Continued*

Product	Test/Section Number	Time	Samples for Conditioning
	Tensile Strength Test (8.4)	Annual	Footwear covers
	Burst Strength Test (8.5)	Annual	Footwear covers
	Tear Resistance Test Two (8.38)	Annual	Footwear covers
	Seam Breaking Strength (8.8)	Annual	Footwear covers
	Abrasion Resistance Test Two (8.25)	Annual	Footwear covers or composite swatches
	Puncture Resistance Test One (8.13)	Annual	Footwear covers
	Slip Resistance Test (8.20)	Annual	Outermost layer of the footwear cover wear surface
	Flammability Test (8.39)	Annual	Footwear cover
	Design Requirements (6.4)	Annual	Footwear
	Cut Resistance Test (8.18)	Annual	Footwear composite swatches
Multiple-use emergency medical footwear	Puncture Resistance Test One (8.13)	Annual	Footwear composite swatches
	Abrasion Resistance Test One (8.19)	Annual	Footwear soles
	Slip Resistance Test (8.20)	Annual	Footwear
	Eyelet and Stud Post Attachment Test (8.21)	Annual	Footwear
	Corrosion Resistance (8.22)	Annual	Complete hardware items
	Biopenetration Test One (8.3)	Annual	Footwear or footwear composite swatches
	Overall Liquid Integrity Test Four (8.23)	Annual	Footwear
	Label Durability and Legibility Test (8.33)	Annual	Individual labels
	Flammability Test (8.39)	Annual	Footwear or footwear composite swatches
	Design Requirements (6.4)	Annual	Footwear
Multiple-use medical care facility footwear	Cut Resistance Test (8.18)	Annual	Footwear composite swatches
	Puncture Resistance Test One (8.13)	Annual	Footwear composite swatches
	Abrasion Resistance Test One (8.19)	Annual	Footwear soles
	Slip Resistance Test (8.20)	Annual	Footwear
	Eyelet and Stud Post Attachment Test (8.21)	Annual	Footwear
	Corrosion Resistance (8.22)	Annual	Complete hardware items
	Biopenetration Test One (8.3)	Annual	Footwear or footwear composite swatches
	Overall Liquid Integrity Test Four (8.23)	Annual	Footwear
	Label Durability and Legibility Test (8.33)	Annual	Individual labels
	Design Requirements (6.5)	Annual	Helmets
Multiple-use emergency medical helmets	Suspension System Retention Test (8.40)	Annual	Helmets
	Retention System Test (8.41)	Annual	Helmets
	Goggle and Headlamp Clip Attachment Test (8.42)	Annual	Helmets
	Corrosion Resistance Test (8.22)	Annual	Complete hardware items
	Design Requirements (6.6)	Annual	Complete ensembles
Multiple-use emergency medical [C]BRN protective ensembles	Particle Inward Leakage Test (8.34)	Initial certification	Complete ensembles
	Overall Ensemble Liquid Penetration Test (8.35)	Annual	Complete ensembles
	Biopenetration Resistance Test Three (8.36)	Annual	See Section 8.38.
	Multiple-Use Emergency Medical Garment Requirements	Annual	See above
	Emergency Medical Footwear Requirements	Annual	See above
	Multiple-Use Emergency Medical Work Glove Requirements	Annual	See above

4.5 Manufacturer's Quality Assurance Program.

4.5.1 The manufacturer shall provide and operate a quality assurance program that meets the requirements of this section and that includes a product recall system as specified in 4.2.7.1, and Section 4.8, Manufacturers' Safety Alert and Product Recall Systems.

4.5.2 The operation of the quality assurance program shall evaluate and test compliant product production to the requirements of this standard to assure production remains in compliance.

4.5.3 The manufacturer shall be registered to ISO 9001, *Quality management systems — Requirements*.

4.5.3.1 Registration to the requirements of ISO 9001, *Quality management systems — Requirements*, shall be conducted by a registrar that is accredited for personal protective equipment.

4.5.3.2 Where the registrar specified in 4.5.3.1 is currently accredited for personal protective equipment in accordance with the 1996 edition of ISO Guide 62, *General requirements for bodies operating assessment and certification/registration of quality systems*, that accreditation shall be permitted until September 14, 2008.

4.5.3.3 Not later than September 14, 2008, registrars specified in 4.5.3.1 shall be accredited for personal protective equipment in accordance with the 2006 edition of ISO/IEC 17021, *Conformity assessment — Requirements for bodies providing audit and certification of management systems*.

4.5.3.4 Any new accreditations for registrars specified in 4.5.3.1 for personal protective equipment shall only be in accordance with the 2011 edition of ISO/IEC 17021, *Conformity assessment — Requirements for bodies providing audit and certification of management systems*.

4.5.4* Any entity that meets the definition of *manufacturer* specified in Section 3.3, General Definitions, and therefore is considered to be the "manufacturer" but does not manufacture or assemble the compliant product, shall meet the requirements specified in this section.

4.5.5* Where the manufacturer uses subcontractors in the construction or assembly of the compliant product, the locations and names of all subcontractor facilities shall be documented, and the documentation shall be provided to the manufacturer's ISO registrar and the certification organization.

4.6 Hazards Involving Compliant Product.

4.6.1* The certification organization shall establish procedures to be followed where situation(s) are reported in which a compliant product is subsequently found to be hazardous. These procedures shall comply with the provisions of ISO 27, *Guidelines for corrective action to be taken by a certification body in the event of misuse of its mark of conformity*, and as modified herein.

4.6.2* Where a report of a hazard involved with a compliant product is received by the certification organization, the validity of the report shall be investigated.

4.6.3 With respect to a compliant product, a hazard shall be a condition or create a situation that results in exposing life, limb, or property to an imminently dangerous or dangerous condition.

4.6.4 Where a specific hazard is identified, the determination of the appropriate action for the certification organization

and the manufacturer to undertake shall take into consideration the severity of the hazard and its consequences to the safety and health of users.

4.6.5 Where it is established that a hazard is involved with a compliant product, the certification organization shall determine the scope of the hazard, including products, model numbers, serial numbers, factory production facilities, production runs, and quantities involved.

4.6.6 The certification organization's investigation shall include, but not be limited to, the extent and scope of the problem as it might apply to other compliant products or compliant product components manufactured by other manufacturers or certified by other certification organizations.

4.6.7 The certification organization shall also investigate reports of a hazard where a compliant product is gaining widespread use in applications not foreseen when the standard was written, such applications in turn being ones for which the product was not certified, no specific scope of application has been provided in the standard, and no limiting scope of application was provided by the manufacturer in written material accompanying the compliant product at the point of sale.

4.6.8 The certification organization shall require the manufacturer of the compliant product, or the manufacturer of the compliant product component if applicable, to assist the certification organization in the investigation and to conduct its own investigation as specified in Section 4.7, Manufacturers' Investigation of Complaints and Returns.

4.6.9 Where the facts indicating a need for corrective action are conclusive and the certification organization's appeal procedures referenced in 4.2.11 have been followed, the certification organization shall initiate corrective action immediately, provided there is a manufacturer to be held responsible for such action.

4.6.10 Where the facts are conclusive and corrective action is indicated, but there is no manufacturer to be held responsible, such as when the manufacturer is out of business or the manufacturer is bankrupt, the certification organization shall immediately notify relevant governmental and regulatory agencies and issue a notice to the user community about the hazard.

4.6.11* Where the facts are conclusive and corrective action is indicated, the certification organization shall take one or more of the following corrective actions:

- (1) Notification of parties authorized and responsible for issuing a safety alert when, in the opinion of the certification organization, such a notification is necessary to inform the users.
- (2) Notification of parties authorized and responsible for issuing a product recall when, in the opinion of the certification organization, such a recall is necessary to protect the users.
- (3) Removal of the mark of certification from the product.
- (4) Where a hazardous condition exists and it is not practical to implement 4.6.11(1), 4.6.11(2), or 4.6.11(3), or the responsible parties refuse to take corrective action, the certification organization shall notify relevant governmental and regulatory agencies and issue a notice to the user community about the hazard.

4.6.12 The certification organization shall provide a report to the organization or individual identifying the reported haz-

ardous condition and notify them of the corrective action indicated, or that no corrective action is indicated.

4.6.13* Where a change to an NFPA standard(s) is felt to be necessary, the certification organization shall also provide a copy of the report and corrective actions indicated to the NFPA, and shall also submit either a public proposal for a proposed change to the next revision of the applicable standard, or a proposed temporary interim amendment (TIA) to the current edition of the applicable standard.

4.7 Manufacturers' Investigation of Complaints and Returns.

4.7.1 Manufacturers shall provide corrective action in accordance with ISO 9001, *Quality management systems — Requirements*, for investigating written complaints and returned products.

4.7.2 Manufacturers' records of returns and complaints related to safety issues shall be retained for at least 5 years.

4.7.3 Where the manufacturer discovers, during the review of specific returns or complaints, that a compliant product or compliant product component can constitute a potential safety risk to end users that is possibly subject to a safety alert or product recall, the manufacturer shall immediately contact the certification organization and provide all information about their review to assist the certification organization with their investigation.

4.8 Manufacturers' Safety Alert and Product Recall Systems.

4.8.1 Manufacturers shall establish a written safety alert system and a written product recall system that describes the procedures to be used in the event that it decides, or is directed by the certification organization, to either issue a safety alert or to conduct a product recall.

4.8.2 The manufacturers' safety alert and product recall system shall provide the following:

- (1) The establishment of a coordinator and responsibilities by the manufacturer for the handling of safety alerts and product recalls
- (2) A method of notifying all dealers, distributors, purchasers, users, and the NFPA about the safety alert or product recall that can be initiated within a 1-week period following the manufacturer's decision to issue a safety alert or to conduct a product recall, or after the manufacturer has been directed by the certification organization to issue a safety alert or conduct a product recall
- (3) Techniques for communicating accurately and understandably the nature of the safety alert or product recall and, in particular, the specific hazard or safety issue found to exist
- (4) Procedures for removing a product that is recalled and for documenting the effectiveness of the product recall
- (5) A plan for either repairing, replacing, or compensating purchasers for returned product

Chapter 5 Product Labeling and Information

Multiple sections of Chapter 5 were revised by a tentative interim amendment (TIA). See page 1.

5.1 Product Label Requirements for Emergency Medical Protective Clothing Items.

5.1.1 General Product and Package Label Requirements.

5.1.1.1 All worded portions of the required product and package labels shall be at least in English.

5.1.1.2 All letters and numbers on product labels and product package labels shall be at least 2 mm ($\frac{1}{16}$ in.) high.

5.1.1.3 Symbols and other pictorial graphic representations shall be permitted to be used to supplement worded statements on the product label(s).

5.1.1.4 Configuration of the product label and attachment of the product label shall not interfere with the legibility of any printed portion of the product label.

5.1.1.5 Where applicable, multiple label pieces shall be permitted in order to carry all statements and information required to be on the product label; however, all label pieces comprising the entire product label shall be located adjacent to each other.

5.1.1.6 Where package labels are required, the package product label shall be permanently and conspicuously located on the outside of the package or printed on the package and shall not be removed, obscured, or otherwise mutilated by the opening of the package when the package is opened as intended.

5.1.2 Single-Use Emergency Medical Garment and Ensemble Product Label Requirements.

5.1.2.1 Each garment shall have a product label or labels permanently and conspicuously located inside each garment when the garment is properly assembled with all layers and components in place.

5.1.2.2 The product label shall have the certification organization's label, symbol, or identifying mark and at least the following statement legibly printed on the product label:

"THIS [insert the term GARMENT or ENSEMBLE here] IS FOR SINGLE USE ONLY!"

THIS [insert the term GARMENT or ENSEMBLE here] MEETS THE SINGLE-USE EMERGENCY MEDICAL [insert the term GARMENT or ENSEMBLE here] REQUIREMENTS OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING AND ENSEMBLES FOR EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.

DO NOT REMOVE THIS LABEL!"

5.1.2.3 The following information shall also be printed legibly on the product label:

- (1) Manufacturer's name, identification, or designation
- (2) Manufacturer's address
- (3) Country of manufacture
- (4) Garment model and style
- (5) Trace number
- (6) Materials of construction
- (7) Month and year of manufacture, not coded
- (8) Size

5.1.2.4 Where the garment is certified as part of a single-use emergency medical protective ensemble, the following additional language shall be provided:

"TO PROVIDE FULL BODY PROTECTION, THE FOLLOWING ADDITIONAL ITEMS MUST BE WORN AS PART OF THIS ENSEMBLE."

[list items including manufacturer name and model or style number.]

5.1.3 Multiple-Use Emergency Medical Protective Garment and Ensemble Product Label Requirements.

5.1.3.1 Each garment shall have a product label or labels permanently and conspicuously located inside each garment when the garment is properly assembled with all layers and components in place.

5.1.3.2 The product label shall have the certification organization's label, symbol, or identifying mark and at least the following statement legibly printed on the product label:

"THIS [insert the term GARMENT or ENSEMBLE here] MEETS THE MULTIPLE-USE EMERGENCY MEDICAL [insert the term GARMENT or ENSEMBLE here] REQUIREMENTS OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING AND ENSEMBLES FOR EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.

DO NOT REMOVE THIS LABEL!"

5.1.3.3 The following information shall also be printed legibly on the product label:

- (1) Manufacturer's name, identification, or designation
- (2) Manufacturer's address
- (3) Country of manufacture
- (4) Garment model or style
- (5) Trace number
- (6) Materials of construction
- (7) Cleaning precautions
- (8) Month and year of manufacture, not coded
- (9) Size

5.1.3.4 Where visibility materials are used on garments and the garment meets the requirements of ANSI/ISEA 107, *High-Visibility Safety Apparel and Headwear*, the product label shall also meet the marking information required by ANSI/ISEA 107.

5.1.3.5 Where visibility materials are used on garments and are not intended to meet the requirements in ANSI/ISEA 107, *High-Visibility Safety Apparel and Headwear*, the product label shall include the following warning:

"WEARING OF THIS GARMENT ALONG ROADSIDES OR OTHER AREAS WITH VEHICULAR TRAFFIC REQUIRES ADDITIONAL HIGH VISIBILITY SAFETY APPAREL, COMPLIANT WITH AT LEAST THE CLASS 2 REQUIREMENTS OF ANSI/ISEA 107."

5.1.3.6 Where the garment is certified as part of a multiple-use emergency medical protective ensemble, the following additional language shall be provided:

"TO PROVIDE FULL BODY PROTECTION, THE FOLLOWING ADDITIONAL ITEMS MUST BE WORN AS PART OF THIS ENSEMBLE."

[list items including manufacturer name and model or style number.]

5.1.4 Single-Use Emergency Medical Examination Gloves Product Label Requirements.

5.1.4.1 The package containing the smallest number of glove items from which the user withdraws the product for use shall have a package product label.

5.1.4.2 The certification organization's label, symbol, or identifying mark and at least the following statement shall be legibly printed on the package product label:

"THIS GLOVE IS FOR SINGLE USE ONLY!"

THIS GLOVE MEETS THE SINGLE-USE EMERGENCY MEDICAL EXAMINATION GLOVE REQUIREMENTS OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING AND ENSEMBLES FOR EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.

DO NOT REMOVE THIS LABEL!"

5.1.4.3 The following information shall also be printed legibly on the package product label:

- (1) Manufacturer's name, identification, or designation
- (2) Manufacturer's address
- (3) Country of manufacture
- (4) Glove model and style
- (5) Trace number
- (6) Materials of construction
- (7) Month and year of manufacture, not coded
- (8) Size

5.1.4.4 In addition to the required package product label, each glove shall be permitted to have a product label on the outside of the glove.

5.1.4.5 Where each glove has a product label, the certification organization's label, symbol, or identifying mark and at least the following statement shall be legibly printed as the product label on each glove:

"MEETS NFPA 1999, 2013 ED."

5.1.5 Single-Use Emergency Medical Cleaning/Utility Glove Product Label Requirements.

5.1.5.1 The package containing the smallest number of glove items from which the user withdraws the product for use shall be permitted to have a package product label in place of the package label.

5.1.5.2 The certification organization's label, symbol, or identifying mark and at least the following statement shall be legibly printed on the package product label:

"THIS GLOVE IS FOR SINGLE USE ONLY!"

THIS GLOVE MEETS THE SINGLE-USE EMERGENCY MEDICAL CLEANING/UTILITY GLOVE REQUIREMENTS OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING AND ENSEMBLES FOR EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.

DO NOT REMOVE THIS LABEL!"

5.1.5.3 The following information shall also be printed legibly on the package product label:

- (1) Manufacturer's name, identification, or designation
- (2) Manufacturer's address
- (3) Country of manufacture
- (4) Glove model and style
- (5) Trace number
- (6) Materials of construction
- (7) Month and year of manufacture, not coded
- (8) Size

5.1.5.4 In addition to the required package product label, each cleaning/utility glove shall be permitted to have a product label on the outside of the glove.

5.1.5.5 Where each cleaning/utility gloves has a product label, the certification organization's label, symbol, or identifying



ing mark and at least the following statement shall be legibly printed as the product label on each glove:

“MEETS NFPA 1999, 2013 ED.”

5.1.6 Multiple-Use Emergency Medical Work Glove Product Label Requirements.

5.1.6.1 Each work glove shall have a product label(s) permanently and conspicuously attached inside each glove.

5.1.6.2 The certification organization’s label, symbol, or identifying mark and at least the following statement shall be legibly printed on the product label:

**“THIS GLOVE MEETS THE MULTIPLE-USE
EMERGENCY MEDICAL WORK GLOVE
REQUIREMENTS OF NFPA 1999, STANDARD ON
PROTECTIVE CLOTHING AND ENSEMBLES FOR
EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.**

DO NOT REMOVE THIS LABEL!”

5.1.6.3 The following information shall also be printed legibly on the product label:

- (1) Manufacturer’s name, identification, or designation
- (2) Manufacturer’s address
- (3) Country of manufacture
- (4) Glove model and style
- (5) Trace number
- (6) Materials of construction
- (7) Cleaning instructions
- (8) Month and year of manufacture, not coded
- (9) Size

5.1.7 Single-Use Emergency Medical Facemask Product Label Requirements.

5.1.7.1 The package containing the smallest number of facemask items from which the user withdraws the product for use shall have a package product label.

5.1.7.2 The certification organization’s label, symbol, or identifying mark and at least the following statement shall be legibly printed on the package product label:

“THIS FACEMASK IS FOR SINGLE USE ONLY!

**THIS MASK MEETS THE SINGLE-USE EMERGENCY
MEDICAL FACEMASK REQUIREMENTS OF NFPA 1999,
STANDARD ON PROTECTIVE CLOTHING AND ENSEMBLES
FOR EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.**

DO NOT REMOVE THIS LABEL!”

5.1.7.3 The following information shall also be printed legibly on the package product label:

- (1) Manufacturer’s name, identification, or designation
- (2) Manufacturer’s address
- (3) Country of manufacture
- (4) Facemask model and style
- (5) Trace number
- (6) Materials of construction
- (7) Month and year of manufacture, not coded
- (8) Size, where applicable

5.1.7.4 In addition to the required package product label, each mask shall be permitted to have a product label in an area of the facemask that does not affect its function.

5.1.7.5 Where each facemask has a product label, the certification organization’s label, symbol, or identifying mark and at

least the following statement shall be legibly printed as the product label on each facemask:

“MEETS NFPA 1999, 2013 ED.”

5.1.7.6 Where the medical facemask is not certified by National Institute for Occupational Safety and Health (NIOSH) as a respirator to 42 CFR 84, “Approval of Respiratory Protective Devices,” the package product label shall include the following additional warning:

**THIS FACEMASK IS NOT A RESPIRATOR AND WILL
NOT PROVIDE RESPIRATORY PROTECTION AGAINST
AIRBORNE BIOLOGICAL HAZARDS.**

5.1.8 Single-Use Emergency Medical Eye and Face Protection Device Product Label Requirements.

5.1.8.1 The package containing the smallest number of eye and face protection device items from which the user withdraws the product for use shall have a package product label.

5.1.8.2 The certification organization’s label, symbol, or identifying mark and at least the following statement shall be legibly printed on the package product label:

“THIS {insert name of item} IS FOR SINGLE USE ONLY!

**THIS {insert name of item} MEETS THE SINGLE-USE
EMERGENCY EYE AND FACE PROTECTION DEVICE
REQUIREMENTS OF NFPA 1999, STANDARD ON
PROTECTIVE CLOTHING AND ENSEMBLES FOR
EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.**

DO NOT REMOVE THIS LABEL!”

5.1.8.3 The following information shall also be printed legibly on the package product label:

- (1) Manufacturer’s name, identification, or designation
- (2) Manufacturer’s address
- (3) Country of manufacture
- (4) Eye and face protection device model or style
- (5) Trace number
- (6) Materials of construction
- (7) Month and year of manufacture, not coded
- (8) Size, where applicable

5.1.8.4 In addition to the required package product label, each eye and face protection device shall be permitted to have a product label in a location of the eye and face protection device that does not interfere with the wearer’s vision or device’s function.

5.1.8.5 Where each eye and face protection device has a product label, the certification organization’s label, symbol, or identifying mark and at least the following statement shall be legibly printed as the product label on each eye and face protection device:

“MEETS NFPA 1999, 2013 ED.”

5.1.9 Multiple-Use Emergency Medical Eye and Face Protection Devices Product Label Requirements.

5.1.9.1 The package containing the smallest number of eye and face protection device items from which the user withdraws the product for use shall have a package product label.

5.1.9.2 The certification organization’s label, symbol, or identifying mark and at least the following statement shall be printed on the package product label:

**“THIS DEVICE MEETS THE MULTIPLE-USE
EMERGENCY MEDICAL EYE AND FACE PROTECTION
REQUIREMENTS OF NFPA 1999, STANDARD ON
PROTECTIVE CLOTHING AND ENSEMBLES FOR
EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.**

DO NOT REMOVE THIS LABEL!”

5.1.9.3 The following information also shall be printed legibly on the package product label:

- (1) Manufacturer’s name, identification, or designation
- (2) Manufacturer’s address
- (3) Country of manufacture
- (4) Eye and face protection device model or style
- (5) Trace number
- (6) Materials of construction
- (7) Cleaning precautions
- (8) Month and year of manufacture, not coded
- (9) Size

5.1.9.4 Each face protection device shall have a product label, in addition to the required package product label, placed in a conspicuous location on the device that shall not interfere with the wearer’s vision.

5.1.9.5 The certification organization’s label, symbol, or identifying mark and at least the following statement shall be legibly printed on the product label of each multiple-use face protection device:

“MEETS NFPA 1999, 2013 ED.”

5.1.10 Single-Use Emergency Medical Footwear Cover Product Label Requirements.

5.1.10.1 The package containing the smallest number of footwear cover items from which the user withdraws the product for use shall have a package product label.

5.1.10.2 The certification organization’s label, symbol, or identifying mark and at least the following statement shall be legibly printed on the package product label:

“THIS FOOTWEAR COVER IS FOR SINGLE USE ONLY!

**THIS FOOTWEAR COVER MEETS THE SINGLE-USE
EMERGENCY MEDICAL FOOTWEAR COVER
REQUIREMENTS OF NFPA 1999, STANDARD ON
PROTECTIVE CLOTHING AND ENSEMBLES FOR
EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.**

DO NOT REMOVE THIS LABEL!”

5.1.10.3 The following information shall also be printed legibly on the package product label:

- (1) Manufacturer’s name, identification, or designation
- (2) Manufacturer’s address
- (3) Country of manufacture
- (4) Footwear cover model or style
- (5) Trace number
- (6) Materials of construction
- (7) Month and year of manufacture, not coded
- (8) Size, where applicable

5.1.10.4 In addition to the required package product label, each footwear cover shall be permitted to have a product label in area of the footwear cover that does not affect the comfort of the wearer.

5.1.10.5 Where each footwear cover has a product label, the certification organization’s label, symbol, or identifying mark

and at least the following statement shall be legibly printed as the product label on each footwear cover:

“MEETS NFPA 1999, 2013 ED.”

5.1.11 Multiple-Use Emergency Medical Footwear Product Label Requirements.

5.1.11.1 Each footwear item shall have a product label or labels permanently and conspicuously attached inside each footwear item when the footwear is properly donned.

5.1.11.2 The certification organization’s label, symbol, or identifying mark and at least the following statement shall be legibly printed on the product label:

**“THIS FOOTWEAR MEETS THE MULTIPLE-USE
EMERGENCY MEDICAL FOOTWEAR REQUIREMENTS
OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING
AND ENSEMBLES FOR EMERGENCY MEDICAL
OPERATIONS, 2013 EDITION.**

DO NOT REMOVE THIS LABEL!”

5.1.11.3 The following information shall also be printed legibly on the product label:

- (1) Manufacturer’s name, identification, or designation
- (2) Manufacturer’s address
- (3) Country of manufacture
- (4) Footwear model or style
- (5) Trace number
- (6) Materials of construction
- (7) Cleaning precautions
- (8) Month and year of manufacture, not coded
- (9) Size

5.1.12 Multiple-Use Medical Care Facility Footwear Product Label Requirements.

5.1.12.1 Each footwear item shall have a product label or labels permanently and conspicuously attached inside each footwear item when the footwear is properly donned.

5.1.12.2 The certification organization’s label, symbol, or identifying mark and at least the following statement shall be legibly printed on the product label:

**“THIS FOOTWEAR MEETS THE MULTIPLE-USE
MEDICAL CARE FACILITY FOOTWEAR REQUIREMENTS
OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING
AND ENSEMBLES FOR EMERGENCY MEDICAL
OPERATIONS, 2013 EDITION.**

**THIS FOOTWEAR HAS NOT BEEN REQUIRED TO
PROVIDE RESISTANCE TO TOE IMPACT AND
COMPRESSION OR SOLE PUNCTURE!**

DO NOT REMOVE THIS LABEL!”

5.1.12.3 The following information shall also be printed legibly on the product label:

- (1) Manufacturer’s name, identification, or designation
- (2) Manufacturer’s address
- (3) Country of manufacture
- (4) Footwear model or style
- (5) Trace number
- (6) Materials of construction
- (7) Cleaning precautions
- (8) Month and year of manufacture, not coded
- (9) Size

5.1.13 Multiple-Use Emergency Medical Helmet Product Labeling Requirements.

5.1.13.1 Each helmet shall have a product label or labels permanently and conspicuously attached. At least one product label shall be conspicuously located on or inside each helmet when the helmet is properly assembled with all components in place.

5.1.13.2 The certification organization's label, symbol, or identifying mark and at least the following statement shall be legibly printed on the product label:

“THIS HELMET MEETS THE EMERGENCY MEDICAL HELMET REQUIREMENTS OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING AND ENSEMBLES FOR EMERGENCY MEDICAL OPERATIONS, 2013 EDITION.

DO NOT REMOVE THIS LABEL!”

5.1.13.3 The following information shall also be printed legibly on the product label:

- (1) Manufacturer's name, identification, or designation
- (2) Manufacturer's address
- (3) Country of manufacture
- (4) Helmet model or style
- (5) Trace number
- (6) Helmet size or size range
- (7) Nominal weight of helmet
- (8) Month and year of manufacture, not coded
- (9) Cleaning precautions

5.1.13.4 Where visibility materials are used on helmets and the helmet meets the requirements of ANSI/ISEA 107, *High-Visibility Safety Apparel and Headwear*, the product label shall also meet the marking information in ANSI/ISEA 107.

5.1.14 Multiple-Use Emergency Medical [C]BRN Protective Ensembles Product Labeling Requirements.

5.1.14.1 Where an entire ensemble is certified as compliant to the requirements for an Emergency Medical [C]BRN Protective Ensemble for protection against [C]BRN terrorism agents, each element of the entire ensemble shall have at least the additional compliance statement as specified in 5.1.14.3 on the product label in place of the appropriate compliance statement specified for the item in this section.

5.1.14.2 The appropriate term for the element type — garment, glove, footwear, or interface component — shall be inserted in the compliance statement text where indicated in this section.

5.1.14.3 Other than the term “[C]BRN Protective Ensemble,” all product label letters and figures shall be at least 2.5 mm ($\frac{3}{32}$ in.) in height. The term “[C]BRN Protective Ensemble” letters shall be at least 10 mm ($\frac{3}{8}$ in.) in height.

“[C]BRN PROTECTIVE ENSEMBLE

THIS ELEMENT IS NOT PART OF A HAZARDOUS MATERIALS PROTECTIVE ENSEMBLE!

THIS EMERGENCY MEDICAL PROTECTIVE (insert appropriate element term here) ELEMENT MEETS THE REQUIREMENTS OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING AND ENSEMBLES FOR EMERGENCY MEDICAL OPERATIONS, 2013 EDITION, FOR [C]BRN PROTECTION WHEN WORN TOGETHER WITH THE OTHER SPECIFIED ELEMENTS AND INTERFACE COMPONENTS OF THE ENSEMBLE.

DO NOT REMOVE THIS LABEL!”

5.1.14.4 The garment element portion of the ensemble meeting the requirements for protection against [C]BRN terrorism agents shall list those items of the certified ensemble by manufacturer name and model number on the product label.

5.2 User Information.

5.2.1 The manufacturer shall provide the following instructions and information with each product, as applicable:

- (1) Pre-use information
 - (a) Safety considerations
 - (b) Limitations of use
 - (c) Marking recommendations and restrictions
 - (d) Statement that most performance properties cannot be tested by the user in the field
 - (e) Warranty information
- (2) Preparation for use
 - (a) Sizing/adjustment
 - (b) Recommended storage practices
- (3) Inspection frequency and details
- (4) Don/doff
 - (a) Donning and doffing procedures
 - (b) Sizing and adjustment procedures
 - (c) Interface issues
- (5) Proper use consistent with NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*; NFPA 1581, *Standard on Fire Department Infection Control Program*; 29 CFR 1910.132, “General Requirements of Subpart I, Personal Protective Equipment,” and 29 CFR 1910.1030, “Protecting Health Care Workers from Occupational Exposure to Blood-Borne Pathogens”
- (6) Maintenance and cleaning for multiple-use products
 - (a) Cleaning instructions and precautions with a statement advising users not to use products that are not thoroughly cleaned and dried
 - (b) Inspection details
 - (c) Maintenance criteria and methods of repair where applicable
 - (d) Retirement criteria and considerations
- (7) Decontamination procedures
- (8) Disposal criteria and considerations

5.2.2 For protective ensembles, or protective ensembles certified to the [C]BRN requirements, the manufacturer shall provide the following additional instruction and information with each ensemble:

- (1) A statement that only the ensemble and the specific items with which the ensemble has been certified must be worn together to ensure that protection is provided.
- (2) A list of the specific items and interface components that must be worn as part of the ensemble, including each type of NIOSH APR, PAPR, or SCBA, or approved breathing system(s) that the ensemble has been certified with.
- (3) Specific limitations associated with the use of the ensemble for a response involving biological threats or [C]BRN hazards, including but not limited to a statement that protection against radiological and nuclear hazards is limited to particulates only.
- (4) Specific care and maintenance provisions associated with properly maintaining the unique performance properties of the ensemble, its items, or interface components.
- (5) A statement that if the ensemble is used in an emergency involving biological or [C]BRN hazards that the ensemble be retired from use and not be further used.

5.2.3* For single-use or multiple-use protective ensembles, the following additional instructions and information shall be provided:

- (1) The specific sequence and requirements for donning each item of the ensemble.
- (2) The specific type of tape and detailed instructions for its application if specified for single-use protective ensembles only.
- (3) Specific recommended methods for cleaning each element where elements are combined or attached.
- (4) Specific considerations for decontamination to be employed during the doffing of ensemble elements.
- (5) The specific sequence, precautions, and requirements for doffing each item of the ensemble, when contaminated with body fluids, for the avoidance of cross-contamination of the individual wearer, other ensemble items, and the outside environment.

5.2.4 The manufacturer shall state the storage life for all single-use and multiple-use protective elements that have been certified as part of an ensemble, and shall include the storage life and the basis for recommended storage life as part of the user information.

Chapter 6 Design Requirements

6.1 Emergency Medical Protective Garment Design Requirements.

6.1.1 Single-Use Emergency Medical Garment Design Requirements.

6.1.1.1 Garments shall be designed to cover any part of the upper and lower torso, excluding hands, face, and feet.

6.1.1.2* Garments shall be permitted to be configured as full body clothing such as jackets and pants or coveralls; and non-full body clothing such as aprons, sleeve protectors, and sleeved aprons or smocks.

6.1.1.2.1 Where garments are configured as aprons, garments shall be designed to protect the front torso of the wearer from the neck to below the knees.

6.1.1.2.2 Where garments are configured as sleeve protectors, garments shall be designed to protect the arm of the wearer from the wrist crease to a distance of no less than 405 mm (16 in.) from the wrist crease.

6.1.1.2.3 Where garments are configured as sleeved aprons, garments shall be designed to protect the front torso of the wearer from the neck to below the knees and arm of the wearer to the wrist crease.

6.1.1.3 Garments shall be permitted to include integrated booties to protect the wearer's feet in conjunction with outer footwear.

6.1.1.3.1 Where garments incorporate booties, the booties shall be designed as an extension of the garment leg and shall cover the entire foot and ankle.

6.1.1.4 Garments shall be permitted to include integrated hoods to protect portions of the wearer's head and face in conjunction with eye and face protection devices and appropriate respirators.

6.1.1.4.1 Where garments incorporate hoods, the hood shall cover at least the back and sides of the head.

6.1.1.5* All portions of the body covered by the garment item shall be provided with barrier protection.

6.1.1.6* The barrier layer used in the construction of the garment shall be a single, nonseparable layer.

6.1.1.7* All external fittings including, but not limited to, zippers, snaps, or other fasteners of specimen garments shall be examined and shall be free of rough spots, burrs, or sharp edges that could tear the garment or glove materials.

Subsection 6.1.1.8 was added by a tentative interim amendment (TIA). See page 1.

6.1.1.8* Where the garment is certified as part of a single-use emergency medical protective ensemble to meet the requirements of 7.1.1.1, the manufacturer shall specify the use of any NFPA 1999-certified single-use emergency medical examination gloves (2 pairs – inner and outer), specific emergency medical footwear or emergency medical footwear covers, specific eye and face protection devices, and specific filtering facepiece respirator.

6.1.1.8.1 Emergency medical protective footwear shall be permitted to include any footwear certified to NFPA 1951, *Standard on Fire Department Infection Control Program*; NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*; NFPA 1991, *Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies*; NFPA 1992, *Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies*; or NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents..*

6.1.1.8.2 If the garment is configured with a bootie that is constructed of garment material and covers the wearer's foot and ankle, then any footwear meeting ASTM F 2413, *Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear*, shall be permitted to be specified in conjunction with the garment.

6.1.1.8.3* Eye and face protection devices shall be permitted to include goggles and faceshields that only meet ANSI Z87.1, *Occupational and Educational Personal Eye and Face Protection Devices*, requirements when marked for splash/droplet use.

6.1.1.8.4* The filtering facepiece respirator shall be a NIOSH-approved filtering facepiece in accordance with Title 42, *Code of Federal Regulations*, Part 84, "Approval of Respiratory Protective Devices," that also meets the requirements of ASTM F 2100, *Standard Specification for Performance of Materials Used in Medical Face Masks*, or a surgical N95 filtering facepiece respirator that is a NIOSH-approved N95 respirator that has also been cleared by the U.S. Food and Drug Administration as a surgical mask.

6.1.1.8.5 The manufacturer shall be permitted to specify respirators that meet the requirements in 6.1.2.9.2.

6.1.1.8.6* The use of a specific tape specified by the manufacturer shall be permitted for securing items in interface areas.

6.1.2 Multiple-Use Emergency Medical Garment Design Requirements.

6.1.2.1 Garments shall be designed to cover any part of the upper and lower torso, excluding hands, face, and feet.

6.1.2.2 Garments shall be permitted to be configured as full body clothing such as jackets and pants or coveralls; and non-full body clothing such as aprons, sleeve protectors, and sleeved aprons or smocks. (See A.6.1.1.2.)

6.1.2.2.1 Where garments are configured as aprons, garments shall be designed to protect the front torso of the wearer from the neck to below the knees.

6.1.2.2.2 Where garments are configured as sleeve protectors, garments shall be designed to protect the arm of the wearer from the wrist crease to a distance of no less than 405 mm (16 in.) from the wrist crease.

6.1.2.2.3 Where garments are configured as sleeved aprons, garments shall be designed to protect the front torso of the wearer from the neck to below the knees and arms of the wearer to the wrist crease.

6.1.2.3 Garments shall be permitted to include integrated booties to protect the wearer's feet in conjunction with outer footwear.

6.1.2.3.1 Where garments incorporate booties, the booties shall be designed as an extension of the garment leg and shall cover the entire foot and ankle.

6.1.2.4 Garments shall be permitted to include integrated hoods to protect portions of the wearer's head and face in conjunction with eye and face protection devices and appropriate respirators.

6.1.2.4.1 Where garments incorporate hoods, the hood shall cover at least the back and sides of the head.

6.1.2.5 All portions of the body covered by the garment item shall be provided with barrier protection. (See A.6.1.1.5.)

6.1.2.6 The barrier layer used in the construction of the garment shall be a single, nonseparable layer. (See A.6.1.1.6.)

6.1.2.7 All external fittings including, but not limited to, zippers, snaps, or other fasteners of specimen garments shall be examined and shall be free of rough spots, burrs, or sharp edges that could tear the garment or glove materials.

6.1.2.8* Where visibility materials are used on garments, and the garments are intended to be used as high-visibility safety apparel, garments shall meet the respective requirements for Performance Class 1, 2, or 3 in accordance with ANSI/ISEA 107, *High-Visibility Safety Apparel and Headwear*.

Subsection 6.1.2.9 was added by a tentative interim amendment (TIA). See page 1.

6.1.2.9* Where the garment is certified as part of a multiple-use emergency medical protective ensemble to meet the requirements of 7.1.2.1, the manufacturer shall specify the use of specific emergency medical cleaning/utility or work gloves worn over any NFPA 1999-certified single-use medical emergency examination gloves, specific multiple-use emergency medical footwear, and specific full facepiece respirator(s).

6.1.2.9.1 Emergency medical protective footwear shall be permitted to include any footwear certified to NFPA 1951, *Standard on Fire Department Infection Control Program*; NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*; NFPA 1991, *Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies*; NFPA 1992, *Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies*; or NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*.

6.1.2.9.2 If the garment is configured with a bootie that is constructed of garment material and covers the wearer's foot and ankle, then any footwear meeting ASTM F2413 shall be permitted to be specified in conjunction with the garment.

6.1.2.9.3 Full-face respirators shall be NIOSH approved as either a full-facepiece air-purifying respirator with minimum protection level of P100 or an appropriate tight or loose-fitting NIOSH-approved powered air-purifying respirator with a pro-

tection level of HE. All respirators shall be approved in accordance with Title 42, *Code of Federal Regulations*, Part 84, "Approval of Respiratory Protective Devices."

6.1.2.9.4 Where a loose-fitting powered air-purifying respirator is specified, the materials used in the construction of the hood shall meet the garment material performance requirements specified in either 7.1.1.1 with the exception of the requirement in 7.1.1.8, or 7.1.2.2 with the exception of 7.1.2.9.

6.2 Emergency Medical Glove Design Requirements.

6.2.1 Single-Use Emergency Medical Examination Glove Design Requirements.

6.2.1.1* Examination gloves shall be designed and designated to meet only the single-use requirements of this standard.

6.2.1.2 In order to label or otherwise represent examination gloves as being compliant with the requirements of this standard, the manufacturer shall provide gloves in not less than five separate and distinct sizes.

6.2.1.3 Examination gloves shall be permitted to be provided in ambidextrous sizing.

6.2.1.4 Examination glove sizing shall be consistent with EN 455-2, *Medical gloves for single use — Part 2: Requirements and testing for physical properties*.

6.2.2 Single-Use Emergency Medical Cleaning/Utility Glove Design Requirements.

6.2.2.1 In order to label or otherwise represent cleaning/utility gloves as being compliant with the requirements of this code, the manufacturer shall provide gloves in not less than four separate and distinct sizes.

6.2.2.2 Cleaning/utility glove hand circumference sizing shall be in accordance with Clause 51 of EN 420, *General requirements for gloves*. Requirements for glove length shall be disregarded.

6.2.2.3 Gloves shall have a length of at least 305 mm (12 in.).

6.2.2.4 Cleaning/utility gloves and related hardware shall be examined and shall be free of rough spots, burrs, or sharp edges that could tear garment or glove material.

6.2.3 Multiple-Use Emergency Medical Work Glove Design Requirements.

6.2.3.1 Emergency medical work gloves shall be designed and designated to meet only the multiple-use requirements of this standard.

6.2.3.2 Emergency medical work gloves shall be designed and configured to provide physical and barrier protection to the wearer's hand from the fingertips to at least the wrist crease.

6.2.3.3 The glove shall consist of a glove body and an optional interface component.

6.2.3.3.1 The glove shall extend circumferentially from the tip of the fingers to the wrist crease.

6.2.3.3.2 The portion of the glove that extends from the tip of the fingers to the wrist crease shall be considered to be the glove body and shall meet the glove body requirements in 7.2.3.

6.2.3.3.3 The optional portion of the glove that extends from the wrist crease up to the end of the entire glove shall be considered to be the glove interface component and shall