

NFPA®

1877

Standard on
Selection, Care, and Maintenance
of Wildland Firefighting Protective
Clothing and Equipment

2022



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Standard on Selection, Care, and Maintenance of Wildland Firefighting Protective Clothing and Equipment

2022 Edition



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NFPA® 1877

Standard on

Selection, Care, and Maintenance of Wildland Firefighting Protective Clothing and Equipment

2022 Edition

This edition of NFPA 1877, *Standard on Selection, Care, and Maintenance of Wildland Firefighting Protective Clothing and Equipment*, was prepared by the Technical Committee on Wildland Fire Fighting Protective Clothing and Equipment and released by the Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment. It was issued by the Standards Council on March 18, 2021, with an effective date of April 8, 2021.

This edition of NFPA 1877 was approved as an American National Standard on April 8, 2021.

Origin and Development of NFPA 1877

This first edition of NFPA 1877, *Standard on Selection, Care, and Maintenance of Wildland Firefighting Protective Clothing and Equipment*, was created to specify the minimum requirements for the selection, care, and maintenance of the wildland firefighting protective clothing and equipment that are compliant with NFPA 1977. This equipment includes garments, helmets, gloves, footwear, face/neck shrouds, goggles, chain saw protection, and load-carrying equipment.

The standard does not specify requirements for organizational programs — the appropriate use of structural firefighting or proximity firefighting protective ensembles; wildland firefighting protective clothing and equipment for training or operations; or for infection control. Such programs are under the jurisdiction of other NFPA standards, including NFPA 1951, NFPA 1971, NFPA 1991, NFPA 1992, NFPA 1994, and NFPA 1999.

The purpose of this standard is to establish basic criteria for selection, inspection, cleaning, decontamination, repair, storage, and retirement of wildland firefighting protective clothing and equipment, and to establish a program that uses these criteria to reduce the safety risks and potential health risks associated with poorly maintained, contaminated, or damaged protective clothing and equipment.

The standard follows the structure of other NFPA standards concerning the selection, care, and maintenance of personal protective equipment (PPE):

- (1) Chapter 1 describes the scope and purpose.
- (2) Chapter 2 lists references used in the standard.
- (3) Chapter 3 has definitions used in the document.
- (4) Chapter 4 has program organization.
- (5) Chapter 5 has selection information.
- (6) Chapter 6 concerns inspection.
- (7) Chapter 7 has cleaning and decontamination information.
- (8) Chapter 8 contains requirements for repair.
- (9) Chapter 9 has storage requirements.
- (10) Chapter 10 has criteria for retirement, disposition, and special incident procedures.
- (11) Chapter 11 has information for independent service provider (ISP) verification.

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Rick L. Swan, Chair

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Rep. International Association of Fire Fighters

Jason L. Allen, Intertek Testing Services, NY [RT]
James B. Area, Chimera Enterprises International, MD [SE]
Joseph Arrington, San Antonio Fire Department, TX [U]
Roger L. Barker, North Carolina State University, NC [SE]
Cristine Z. Fargo, International Safety Equipment Association, VA [M]
Edmund Farley, Pittsburgh Bureau Of Fire, PA [E]
Diane B. Hess, PBI Performance Products, Inc., NC [M]
Thomas M. Hosea, US Department of the Navy, FL [RT]
Ronald Johnston, Superior Products, OH [M]
Rep. Compressed Gas Association
Beth C. Lancaster, US Department of Defense, VA [E]
Jeff Legendre, Northborough Fire Department, MA [U]
Karen E. Lehtonen, LION Group, Inc., OH [M]
David G. Matthews, Fire & Industrial (PPE) Ltd., United Kingdom [SE]
Rep. International Standards Organization
Benjamin Mauti, Globe Manufacturing/Mine Safety Appliances Company, PA [M]

Michael F. McKenna, Michael McKenna & Associates, LLC, CA [SE]
Douglas Menard, Boston Fire Department, MA [U]
John H. Morris, 3M Company, GA [M]
Amanda H. Newsom, UL LLC, NC [RT]
Stephen R. Sanders, ASTM/Safety Equipment Institute (SEI), VA [RT]
Jeffrey O. Stull, International Personnel Protection, Inc., TX [M]
Jonathan V. Szalajda, National Institute for Occupational Safety & Health, PA [E]
Robert D. Tutterow, Jr., Fire Industry Education Resource Organization (FIERO), NC [U]
Rep. NFPA Fire Service Section
William A. Van Lent, Veridian Ltd., Inc., IA [M]
Rep. Fire & Emergency Manufacturers & Services Association
Bruce H. Varner, BHVarner & Associates, AZ [M]
Rep. International Fire Service Training Association
Dick Weise, Los Angeles County Fire Department/Safer, CA [U]
Harry P. Winer, HIP Consulting LLC, MA [SE]

Alternates

David T. Bernzweig, Columbus (OH) Division of Fire, OH [L]
(Alt. to Rick L. Swan)
Louis Carpentier, Innotex Inc., Canada [M]
(Alt. to William A. Van Lent)
Robin B. Childs, US Department of Defense, VA [E]
(Alt. to Beth C. Lancaster)
Patricia A. Freeman, Globe Manufacturing Company, LLC/Mine Safety Appliances Company (MSA), NH [M]
(Alt. to Benjamin Mauti)
Daniel Glucksman, International Safety Equipment, VA [M]
(Alt. to Cristine Z. Fargo)
Kenneth Hayes, Boston Fire Department, MA [U]
(Alt. to Douglas Menard)
Pamela A. Kavalesky, Intertek Testing Services, NY [RT]
(Alt. to Jason L. Allen)
Judge W. Morgan, 3M Scott Safety, NC [M]
(Alt. to John H. Morris)
Gary L. Neilson, Sparks, NV [U]
(Alt. to Robert D. Tutterow, Jr.)

Jeffrey Peterson, National Institute for Occupational Safety & Health, PA [E]
(Alt. to Jonathan V. Szalajda)
Kevin M. Roche, Facets Consulting, AZ [M]
(Alt. to Bruce H. Varner)
Russell Shephard, Australasian Fire & Emergency Service Authorities Council, Australia [SE]
(Alt. to David G. Matthews)
David P. Stoddard, Michael McKenna & Associates, LLC, CA [SE]
(Alt. to Michael F. McKenna)
Grace G. Stull, International Personnel Protection, Inc., TX [M]
(Alt. to Jeffrey O. Stull)
Donald B. Thompson, North Carolina State University, NC [SE]
(Alt. to Roger L. Barker)
Jian Xiang, The DuPont Company, Inc., VA [M]
(Alt. to Diane B. Hess)

Nonvoting

Robert J. Athanas, SAFE-IR, Incorporated, NY [SE]
Rep. TC on Electronic Safety Equipment
Christina M. Baxter, Emergency Response Tips, LLC, FL [U]
Rep. TC on Hazardous Materials PC&E
Tricia L. Hock, ASTM/Safety Equipment Institute (SEI), VA [RT]
Rep. TC on Emergency Medical Services PC&E
Jeremy Metz, West Metro Fire Rescue, CO [U]
Rep. TC on Special Operations PC&E
Chris Farrell, NFPA Staff Liaison

Stephen T. Miles, National Institute for Occupational Safety & Health, WV [E]
Rep. TC on Respiratory Protection Equipment
Brian Montgomery, US Department of Justice, DC [E]
Rep. Tactical and Technical Operations Respiratory Protection Equipment
Tim W. Tomlinson, Addison Fire Department, TX [C]

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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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Mark Y. Ackerman, University of Alberta, Canada [SE]

Jason L. Allen, Intertek Testing Services, NY [RT]

Curtis Brown, CAL FIRE, CA [E]

Richard Brown, Calaveras Consolidated Fire Protection District, CA [C]

Rep. National Volunteer Fire Council

Derrick Davis, Kern County Fire Department, CA [E]

Tyler J. Dennison, L.N. Curtis And Sons, UT [IM]

Tom J. Diani, Reno Fire Department, NV [E]

Vincent Diaz, Atlantic Thread & Supply Company Inc., MD [M]

David P. Fanning, E. D. Bullard Company, KY [M]

Tricia L. Hock, ASTM/Safety Equipment Institute (SEI), VA [RT]

R. J. Johnson, US Department of the Interior, ID [E]

Thomas S. Martin, Responder Solutions, CA [M]

Benjamin Mauti, Globe Manufacturing/Mine Safety Appliances Company, PA [M]

David A. Moore, Jr., Glendale Fire Department, OH [E]

Amanda H. Newsom, UL LLC, NC [RT]

Anthony Petrilli, US Department of Agriculture, MT [RT]
Rep. USDA Forest Service

Michael Salvato, Stedfast USA, DE [M]

Robert Self, TenCate Protective Fabrics/Southern Mills, GA [M]

Joel E. Sipe, Exponent, Inc., CA [SE]

Rick L. Swan, IAFF Local 2881/CDF Fire Fighters, VA [L]
Rep. International Association of Fire Fighters

Jay L. Tarley, National Institute for Occupational Safety & Health, WV [E]

Rep. National Institute for Occupational Safety & Health

Dick Weise, Los Angeles County Fire Department/Safer, CA [U]
Rep. Southern Area Fire Equipment Research

Gary C. Wood, North Carolina Division of Forest Resources, NC [C]

Alternates

Godot Apuzzo, US Forest Service, MT [RT]
(Alt. to Anthony Petrilli)

Paul F. Curtis, L.N. Curtis & Sons, CA [IM]
(Alt. to Tyler J. Dennison)

William Matthew Ernst, E.D. Bullard Company, KY [M]
(Alt. to David P. Fanning)

Crystal D. Forester, National Institute for Occupational Safety & Health (NIOSH), WV [E]
(Alt. to Jay L. Tarley)

Andrew Kaiser, UL LLC, NC [RT]
(Alt. to Amanda H. Newsom)

Pamela A. Kavalesky, Intertek Testing Services, NY [RT]
(Alt. to Jason L. Allen)

Chris Farrell, NFPA Staff Liaison

Steve W. McClintock, US Department of the Interior, NV [C]
(Alt. to Richard Brown)

Dean D. Moran, ASTM/Safety Equipment Institute (SEI), VA [RT]
(Alt. to Tricia L. Hock)

John F. Rihn, Globe Manufacturing/Mine Safety Appliances Company, PA [M]
(Alt. to Benjamin Mauti)

Chad Sears, Stedfast, VA [M]
(Alt. to Michael Salvato)

William H. Yohn, US Department of the Interior, ID [E]
(Alt. to R. J. Johnson)

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Committee Scope: This Committee shall have primary responsibility for documents on protective clothing and protective equipment, except respiratory protective equipment, that provides hand, foot, torso, limb and head protection, as well as interface protection for fire fighters or other emergency services responders during incidents involving wildland fire fighting operations. These operations include the activities of fire suppression and property conservation in forest, brush, grass, ground cover, and other such vegetation that is not within structures but that is involved in fire. Additionally, this Committee shall have primary responsibility for documents on the selection, care, and maintenance of wildland fire fighting protective clothing and protective equipment by fire and emergency services organizations and personnel.

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Standard on

Selection, Care, and Maintenance of Wildland Firefighting Protective Clothing and Equipment

2022 Edition

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

Chapter 1 Administration**1.1 Scope.**

1.1.1 This standard shall specify the minimum requirements used for selection, care, and maintenance of wildland firefighting protective clothing and equipment that are compliant with NFPA 1977, including garments, helmets, gloves, footwear, face/neck shrouds, goggles, chain saw protection, and load-carrying equipment.

1.1.2 This standard shall not specify requirements for other organizational programs, such as appropriate use of wildland firefighting protective clothing and equipment for training, for operations, or for infection control, because such programs are under the jurisdiction of other NFPA standards.

1.1.3 This standard shall not apply to protective ensembles or protective clothing that are compliant with NFPA 1951, NFPA 1971, NFPA 1991, NFPA 1992, NFPA 1994, and NFPA 1999.

1.1.4 This standard shall not be construed as addressing all the safety concerns associated with the use of compliant protective clothing and equipment. It shall be the responsibility of the persons and organizations that use compliant protective clothing and equipment to establish safety and health practices and to determine the applicability of regulatory limitations prior to use.

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

1.1.6 Nothing herein shall restrict any jurisdiction from exceeding these minimum requirements.

1.2 Purpose.

1.2.1 The purpose of this standard shall be to establish basic criteria for selection, inspection, cleaning, decontamination, repair, storage, and retirement of wildland firefighting protective clothing and equipment.

1.2.2 The purpose of this standard shall be to establish a program that uses these criteria to reduce the safety risks and potential health risks associated with poorly maintained, contaminated, or damaged wildland firefighting protective clothing and equipment.

1.3 Application.

1.3.1 This standard shall apply to wildland firefighting clothing and equipment certified as compliant with NFPA 1977.

1.3.2 This standard shall not apply to other organizational programs such as appropriate use of wildland firefighting protective clothing and equipment for training, operations, or infection control, because such programs are under the jurisdiction of other NFPA standards.

1.3.3 This standard shall not apply to respiratory protective equipment other than where such equipment interfaces with wildland firefighting protective clothing and equipment.

1.3.4 The requirements of this standard shall not apply to accessories attached to any element of the wildland firefighting protective clothing and equipment unless specifically addressed herein.

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 Values in parentheses shall not be considered as the requirements because these values might not be exact equivalents.

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, Health, and Wellness Program*, 2021 edition.

NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Incidents*, 2020 edition.

NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2018 edition.

NFPA 1977, *Standard on Protective Clothing and Equipment for Wildland Fire Fighting and Urban Interface Fire Fighting*, 2022 edition.

NFPA 1991, *Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies and CBRN Terrorism Incidents*, 2016 edition.

NFPA 1992, *Standard on Liquid Splash—Protective Ensembles and Clothing for Hazardous Materials Emergencies*, 2018 edition.

NFPA 1994, *Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents*, 2018 edition.

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

2.3 Other Publications.

2.3.1 ISO Publications. International Organization for Standardization, ISO Central Secretariat, BIBC II, Chemin de Blandinnet 8, CP 401, 1214 Vernier, Geneva, Switzerland.

ISO 17011:2017(E), *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*, 2004.

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

ISO/IEC 17065, *Conformity assessment — Requirements for bodies certifying products, processes and services*, 2012.

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

3.3 General Definitions.

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

3.3.2 Base-Layer Garment. The first layer of a textile structure that is in direct contact with the skin (e.g., briefs, t-shirts, bras, socks).

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

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

3.3.5 Care. Procedures for cleaning, decontamination, and storage of protective clothing and equipment.

3.3.6 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 a specific standard(s), authorizes the manufacturer to use a label on listed products that comply with the requirements of that standard(s), and establishes a follow-up program conducted by the certification organization as a check on the methods the manufacturer uses to determine continued compliance of labeled and listed products with the requirements of that standard(s).

3.3.7 Char. The formation of a brittle residue when material is exposed to thermal energy.

3.3.8 Cleaning. The act of removing soils and contaminants from clothing and equipment by mechanical, chemical, thermal, or combined processes.

3.3.9 Contamination/Contaminated. The process by which clothing and equipment are exposed to hazardous materials, body fluids, or chemical, biological, radiological, and nuclear (CBRN) terrorism agents.

3.3.10 Cross-Contamination. The transfer of contamination from one item to another or to the environment.

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

3.3.12 Decontamination. The act of removing contaminants from protective clothing and equipment by a physical, chemical, or combined process. (See also 3.3.8, *Cleaning*.)

3.3.13 Elasticity. The ability of a material to return to its original form after being stretched.

3.3.14 Field Evaluation. The nonlaboratory assessment of an element.

3.3.15 Fit. The quality, state, and manner in which clothing and equipment, when worn, relate to the human body.

3.3.16 Flame Resistance (Protective Clothing and Equipment). The property of a material whereby combustion is prevented, terminated, or inhibited following the application of a flaming or nonflaming source of ignition, with or without subsequent removal of the ignition source.

3.3.17 Functionality. The ability of the clothing and equipment or a component to continue to be utilized for its intended purpose.

3.3.18 Hardware. Nonfabric components of the protective clothing and equipment, including but not limited to those made of metal or plastic.

3.3.19 Hazardous Materials. Substances (solid, liquid, or gas) that when released are capable of creating harm to people, the environment, and property.

3.3.20 Independent Service Provider (ISP). See 3.3.34, Verified Independent Service Provider (ISP).

3.3.21 Integrity. The ability of an element to remain intact and provide continued minimum performance.

3.3.22 Maintenance. The inspection, service, and repair of protective clothing and equipment, including the determination for removal from service.

3.3.23 Major A Seam. Seam assemblies where rupture exposes the wearer to immediate danger.

3.3.24 Manufacturer. The entity that directs and controls the 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.

3.3.25 Manufacturer-Trained Organization. A nonverified organization trained by an element manufacturer of the same element type to conduct advanced cleaning, advanced inspection, and/or basic repair on the organization's clothing and equipment.

3.3.26 Melt. A response to heat by a material resulting in evidence of flowing or dripping.

3.3.27 Minor Seam. Remaining seam assemblies that are not classified as major seams.

3.3.28 Organization. The entity that provides the direct management and supervision for the emergency services personnel.

3.3.29 Retirement. The process of permanently removing an element from emergency operations service in the organization.

3.3.30 Selection. The risk assessment process used to determine what protective clothing and equipment (PCE) is necessary for protection of fire and emergency services response personnel from an anticipated specific hazard or other activity, the procurement of the appropriate PCE, and the choice of the proper PCE for a specific hazard or activity at an emergency incident.

3.3.31 Soiled/Soiling. The accumulation of materials that are not considered hazardous but could degrade the performance of the element.

3.3.32 Stress Area. Those areas of the garment that are subjected to more wear, including, but not limited to, crotches, knees, elbows, and shoulders.

3.3.33 Suspension. The energy attenuating system of the helmet that is made up of the headband and crown strap.

3.3.34 Verified Independent Service Provider (ISP). An independent service provider verified by a third-party certification organization to conduct cleaning, repair service, or both.

3.3.35* Verified Organization. An organization, verified by a third-party certifier, to conduct cleaning, repair service, or both.

Chapter 4 Program

4.1 General.

4.1.1* The organization shall develop and implement a program for the selection, care, and maintenance of wildland firefighting personal protective equipment (PPE) used by the members of the organization in the performance of their assigned functions.

4.1.2 This program shall have the goal of providing wildland firefighting PPE that are suitable and appropriate for the intended use; maintaining such protective PPE in a safe, usable condition to provide the intended protection to the user; removing from use such PPE that could cause or contribute to user injury, illness, or death because of its condition; and reconditioning, repairing or retiring such PPE.

4.1.3 Where this program for the selection, care, and maintenance of wildland firefighting PPE is part of an organization's overall program on protective clothing and protective equipment, the portion of the organization's overall program that affects wildland firefighting PPE shall be in accordance with Section 4.2.

4.2 Program Organization for Wildland Firefighting PPE.

4.2.1 The organization shall develop written standard operating procedures (SOP) that shall identify and define the various