

**STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

PROPOSED STATE STANDARD,
TITLE 8, DIVISION 1, CHAPTER 4

Article 10.1 Personal Protective Clothing and Equipment for Fire Fighters

§3401. Application

§3402. Definitions

§3402.1 Personal Protective Equipment Purchase Quality Standards for Structural and Proximity Fire Fighting.

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§3404. ~~Eye and Face Protection.~~ Protective Hood Interface

§3405. ~~Ear and Neck Protection.~~ Body Protection.

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§3407.1 CBRN Protective Ensemble for Structural and Proximity Fire Fighting Ensembles

§3408. ~~Foot Protection.~~ Personal Alert Safety Systems (PASS)

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§3410. Wildland Fire Fighting Requirements.

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Amend §3401 to read:

§3401. Application.

(a) These Orders establish minimum requirements for personal protective clothing and equipment for fire fighters when exposed to the hazards of fire fighting activity and take precedence over any other Safety Order with which they are inconsistent.

Sections ~~3403-3409~~ 3402.1, 3402.3 through 3409, inclusive, apply to proximity and structural fire fighting as defined in Section 3402.

(b) General Requirements.

(1) Personal protective clothing and equipment specified in these Orders shall be provided and used whenever such employees are required to work in a hazardous environment that may be encountered during fire fighting activities or under similar conditions during training activities.

(2) The employer shall ensure the availability, maintenance, and use of all protective clothing and equipment in accordance with these Orders.

(3) Employees shall be instructed to wear or utilize appropriate personal protective clothing and equipment when directed to work in a hazardous environment until such time as the officer in charge determines that such protection is no longer required.

(4) Personal protective clothing and equipment that has become damaged or otherwise defective to the point of voiding its intended protection shall be removed from service.

(5) Fire fighters and other employees engaged in emergency activities requiring special protective techniques and equipment shall be trained in the appropriate techniques and provided with the necessary protective equipment.

(6) Employers shall develop and require use of a written plan covering the safe use, maintenance, utilization, and replacement of the equipment required in these Orders, and all affected employees shall be trained in accordance with such plan. [The employer's written plan would have to reflect new §3402.3]

(7) Employers shall ensure that new protective clothing and equipment provided be furnished with a statement of performance declaring that the product has been tested and meets the requirements of these Orders.

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~~(c) Personal Alarms.~~ [Moved to Section 3408]

~~(1) Every fire fighter engaged in interior structural fire fighting activities requiring the use of self-contained breathing apparatus shall be provided with a personal alarm device. Alarm devices ordered or purchased after January 1, 1986, shall meet the requirements of Section 3401(c)(3)(B) and NFPA 1982 (1983). Each alarm device ordered or purchased prior to January 1, 1986 shall meet the following minimum requirements:—[Items order after July 1, 2017, NFPA 1971 (2013)]~~

~~(2) Operation.~~

~~(A) Controls shall be incorporated in alarm devices for manual activation and reset, and shall be protected against accidental deactivation. Such controls shall be designed to be operated by a gloved hand.—[Personal alarm now requires automatic activation and is incorporated with the SCBA]~~

~~(B) Alarm devices shall contain a motion detector which will activate the alarm if the fire fighter is motionless for not less than twenty (20) seconds nor more than forty (40) seconds. The alarm shall also include a pre warning device to signal the fire fighter that the alarm is approaching the point of activation. [moved to 3405]~~

~~(3) Performance.~~

~~(A) Alarm devices shall emit a signal with a sound pressure level of not less than 85 dba measured at a distance of three (3) meters for not less than one (1) hour using an eighty percent (80%) charged battery. Signal frequency used shall not be less than 2000 Hz nor more than 4000 Hz.~~

~~(B) The alarm shall operate in a temperature range of -10o C to 80o C and for a period of two minutes at 140o C. [Required to pass Room Conditioning Temp: -20 °C for 4 hours, 71 °C for 4 hours, testing begins after removed from conditioning for 30 sec, Temperature Stress Test, Heat and Flame Test, the temperature performance requirement will be covered by the certification stating that it meets NFPA 1982]~~

~~(C) Alarm devices shall be designed to withstand damage created by deterioration of the type of battery recommended by the manufacturer for use in such devices. [Certification will cover the design requirements]~~

~~(D) Alarm devices shall remain operable after being submerged in sea water for at least one hour at a depth of two meters. [Employers do not be design equipment. Certification of the product as meeting NFPA 1982 will address performance requirements]~~

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~~(E) Alarm devices shall be impact and shock resistant, and shall be designed to remain operable after being dropped six (6) successive times from random positions onto a concrete floor from a height of not less than two meters.~~

~~(F) Alarm devices shall not weigh more than 350 grams, including batteries.~~

~~(4) Safety.~~

~~(A) Alarm devices shall be equipped with a visual or audible device to indicate when the battery has been discharged to not less than 80 percent of its rated capacity.~~

~~(B) Alarm devices shall be equipped with an audible means to warn of the malfunction of the motion sensing circuitry.~~

~~(C) Alarm devices shall be intrinsically safe for use in a flammable or explosive atmosphere.~~

~~(5) Certification.~~

~~Alarm devices shall be labeled or otherwise certified to indicate compliance with this section.~~

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend §3402 to read:

§3402. Definitions.

After-Flame. The time a test specimen continues to flame after the flame source has been removed. (When subjected to flame resistance test.)

After-Glow. The time a test specimen continues to glow after it has ceased to flame. (When subjected to flame resistance test.)

Break-away Device. A type of chin strap or chin strap connection designed so that excessive pressure exerted on the helmet in the form of upward force will cause the chin strap to open and release the helmet from the head.

Buddy-Breathing Device. An accessory to self-contained breathing apparatus which permits a second person to share the same air supply as that of the wearer of the apparatus.

Contamination/Contaminated. The process by which ensembles and ensemble elements are exposed to hazardous materials, body fluids, or CBRN terrorism agents.

CBRN. An abbreviation for chemicals, biological agents, radiological, and nuclear particulates that could be released as a result of a terrorist attack. [NFPA definition does not have nuclear. What does the N stand for?]

Char-Length. The distance from the end of the specimen which was exposed to flame source, to the upper edge of the charred, burned, or void area. (When subjected to flame resistance test.)

Drag Rescue Device (DRD). A device affixed in protective clothing that aids the rescue of an incapacitated firefighter by dragging him/her along a horizontal plane. [need to refine definition]

Education. The process of imparting knowledge or skill through systematic instruction. It does not require formal classroom instruction.

Emergency Breathing Safety System (EBSS). A device on a SCBA that allows user to share their available air supply in an emergency situation.

Emergency Pick-Up Labor. Personnel consisting of National Guard, military forces, forest product workers, farm workers, ranchers, and other persons who may be recruited from time to time to help contain and control wildland fires.

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Enclosed Structure. A structure with a roof or ceiling and at least two walls which may present fire hazards to employees; such as, accumulations of smoke, toxic gases and heat, similar to those found in buildings.

Energy, Absorption System. A material or suspension system, or combination thereof, placed inside the helmet between the exterior shell and the wearer's head to absorb and distribute impact energy.

Face Shield. A heat and flame resistant device worn in front of the eyes and face, whose predominant function is protection of the eyes and face.

Fire Fighter. An employee who is assigned to fire fighting activity, and is required to respond to alarms and perform emergency action at the location of a fire or fire related danger. Included are the employees of fire departments, fire protection districts, state fire agencies, organized fire companies, and private fire brigades when engaged in fire fighting activity. The term does not apply to emergency pick-up labor or other persons who may perform first-aid fire extinguishment as collateral to their regular duties.

Fire Fighting Activity. Physical action taken in the direct act of fire suppression, and rescue or hazardous duties performed at the location of a fire emergency.

~~**Fire Fighting, Structural.** The comprehensive physical fire suppression activity of public fire departments as determined by Sections 25210.5 and 25643 of the California Government Code.~~ [Remove this definition, the government code below does not define structural fire fighting]

CA Gov Code 25210.5 [For AC Information Only]

If any provision of this chapter or the application of any provision of this chapter in any circumstance or to any person, county, city, special district, school district, the state, or any agency or subdivision of the state is held invalid, that invalidity shall not affect other provisions or applications of this chapter which can be given effect without the invalid provision or application of the invalid provision, and to this end the provisions of this chapter are severable.

CA Gov Code 25643

The board of supervisors of a county shall determine each year such sum of money as the board of supervisors deems necessary for fire protection services within the county, excluding therefrom any city or district which is at such time providing fire protection services within such city or district. Except for the costs of forest, range, and watershed fire protection within state responsibility areas as defined in Part 2 (commencing with Section 4101) of Division 4 of the Public Resources Code, for which the county is not reimbursed by the state, the taxes for the costs of county fire protection services shall be levied only on property within the

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county served by and benefiting from county fire protection services, or such costs shall be paid from other nonproperty tax revenues collected within the unincorporated area of the county. Every city or district which provides its own fire protection services, and which prior to March 1 of any year files with the board of supervisors of the county a resolution declaring that such city or district is providing fire protection services within its jurisdiction, shall not be assessed during the following fiscal year and any year thereafter for any portion of the costs of county fire protection services, except for the costs of forest, range, and watershed fire protection within state responsibility areas as defined in Part 2 (commencing with Section 4101) of Division 4 of the Public Resources Code, for which the county is not reimbursed by the state. All property located within a county service area receiving structural fire protection services under Chapter 2.5 (commencing with Section 25210) of this part shall be exempt from any county tax imposed on property generally to finance structural fire protection, commencing with the 1972-73 fiscal year. This section shall not apply to a county with a population of more than 1,000,000 but less than 6,000,000 according to the 1960 federal census.

Fire Fighting Ensemble (Structural or Proximity). Multiple elements of compliant protective clothing and equipment that when worn together provide protection from some risks, but not all risks, of emergency incident operations.

Fire Fighting Protective Coat (Structural or Proximity). The element of the protective ensemble that provides protection to upper torso and arms, excluding the hands and head.

Fire Fighting Protective Coveralls (Structural or Proximity). The element of the protective ensemble that provides protection to the torso, arms, and legs, excluding head, hands, and feet.

Flame Resistance. A property of materials which causes resistance to ignition or combustion, provided through the use of inherently flame resistant materials, or materials treated to be flame resistant in a manner that the treatment will remain effective for the service life of the material under conditions anticipated for its use.

Harmful Exposure. An exposure to oxygen-deficient atmosphere, or to dusts, fumes, mists, vapors, chemicals or gases of such concentration and duration as to cause injury.

Hazardous Environment. A place where a fire fighter is likely to receive a harmful exposure to a hazardous substance, or be exposed to physical or mechanical hazards which are likely to cause injury.

Hazardous Substance. One which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritant or otherwise harmful, is likely to cause injury.

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Heat Resistance. The ability of a material to retain its original properties such as shape, size, strength, hardness, resilience, non-conductivity, or appearance when subjected to temperatures specified in heat resistance tests.

Helmet. A device consisting of a shell, energy absorption system, and retention system intended to be worn to provide protection for the head or portions thereof against impact, flying or falling objects, electric shock, penetration, heat and flame, or any combination thereof.

Incipient Stage Fire. A fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe, small hose systems, or other methods without the need for protective clothing or breathing apparatus.

Independent Service Provider (ISP). See Section [3402.3\(g\)](#)

Injury. Includes work related illness, disease, impairment, disfigurement, loss of function of any part of the body, as well as symptoms of significant adverse effects or damage.

Interior Structural Fire Fighting Activities (Private Fire Brigades). The physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage.

Lining. A material attached to the inside of the outer shell of a garment for the purpose of thermal protection and padding.

Long Duration Breathing Device. A self-contained respiratory protective device designed to provide the user with a respirable atmosphere for a minimum service time of one hour.

Outer Shell. The exterior layer of material on the fire coat and protective trousers which forms the outermost barrier between the fire fighter and the environment. It is attached to the vapor barrier and liner and is usually constructed with a storm flap, suitable closures, and pockets.

Private Fire Brigade. An organized group of private industry fire personnel who may also be assigned to other functions, but who have priority obligation to fire protection. Fire fighting responsibility may be independent, under mutual-aid agreement, or supported by regular fire service assistance.

Protective Clothing. Outer garments other than turnout clothing consisting of trousers, jackets, or coveralls.

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Proximity Fire Fighting. Specialized fire fighting operations that can include the activities of rescue, fire suppression, and property conservation at incidents involving fire producing high levels of radiant heat as well as conductive and convective heat.

Quick Disconnect Valve. A device which starts the flow of air by inserting of the hose (which leads from the facepiece) into the regulator of self-contained breathing apparatus, and stops the flow of air by disconnection of the hose from the regulator.

Respiratory Protective Device (RPD). A breathing device designed to protect the wearer from oxygen-deficient, or hazardous atmosphere.

(A) Self-contained breathing apparatus (SCBA). A portable respiratory protective device, normally designed to be worn by the user by means of an incorporated harness assembly, with its own supply of air, oxygen or oxygen generating material. It is normally equipped with a full facepiece. Self-contained breathing apparatus is further described in 30 CFR Chapter 1, Part 11, Subpart H.

(B) Closed-Circuit Self-Contained Breathing Apparatus. A device in which exhaled breath is scrubbed of CO₂ and recycled.

(C) Open-Circuit Self-Contained Breathing Apparatus. A device in which compressed air is released to the face piece from a storage cylinder, and exhaled air is expelled to the atmosphere. (Oxygen supply is not permitted in open-circuit breathing apparatus used in fire fighting activities.)

(D) Demand-Type Breathing Apparatus. Equipment in which pressure inside the facepiece is slightly negative on inhalation, and positive on exhalation.

(E) Positive-Pressure Type Breathing Apparatus. Equipment in which the pressure inside the facepiece is positive during both inhalation and exhalation.

(F) Combination Breathing Apparatus-Respirator. A combination of compressed air self-contained breathing apparatus and National Institute of Occupational Safety and Health (NIOSH) Type C supplied-air respiratory protective device of the positive-pressure type. Combination respirator equipment is further described in 30 CFR, Chapter 1, Part 11, Subparts H and J.

Retention System. The complete assembly by which the helmet is retained on the head. Included are a chin strap and adjustable or fitted liner for a proper fit.

Self-Extinguishing. A term applied to a material which when subjected to flaming ignition, may ignite and propagate only until removal of the source of ignition.

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Service Time. The period of time that a respirator has been rated by NIOSH to provide protection to the wearer.

Soiled/Soiling. The accumulation of materials that are not considered hazardous materials, body fluids, or CBRN terrorism agents but that could degrade the performance of the ensemble or ensemble element.

Structural Fire Fighting. The activities of **rescue**, fire suppression, and property conservation in buildings, enclosed structures, vehicles, marine vessels, or like properties that are involved in fire or emergency situation. [Discuss the need to add a section regarding ropes and safety harnesses]

Training. The process of making proficient through instruction and hands-on practice in the operation of equipment, including respiratory protection equipment, that is expected to be used and in the performance of assigned duties.

Trousers. A garment worn to cover the lower part of the human body from the waist to the ankles.

~~Turnout Clothing. Protective clothing consisting of a coat and trousers as specified in NFPA 1971 (1981) "Protective Clothing for Structural Fire Fighting" except as modified by Section 3406(b) of these Orders.~~

Vapor Barrier. That material used to prevent or substantially inhibit the transfer of water, corrosive liquids and steam or other hot vapors from the outside of a garment to the wearer's body.

Wildlands. Sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof.

Wildland Fire Fighting. The activities of fire suppression and property conservation in woodlands, forests, grasslands, brush, prairies, and other such vegetation, or any combination of vegetation, that is involved in a fire situation, but is not within buildings or structures.

Winter Liner. A detachable extra lining worn inside turnout garments and head protection to give added protection to the wearer against the effects of cold weather and wind.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Add new section to read:

§3402.1 Personal Protective Equipment Purchase Quality Standards for Structural and Proximity Fire Fighting.

(a) Helmets ordered or purchased on or after July 1, 2017, for use in structural fire fighting or proximity fire fighting shall meet the certification, labeling, design, performance, and testing requirements of the National Fire Protection Association (NFPA) 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2013 Edition, which is hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(b) Eye or face protection ordered or purchased on or after July 1, 2017, for use in structural firefighting or proximity fire fighting shall meet the certification, labeling, design, performance, and testing requirements of NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire fighting, 2013 Edition, which is hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(c) Hoods ordered or purchased after on or after July 1, 2017 for use in structural or proximity fire fighting shall meet the certification, labeling, design, performance, and testing requirements of NFPA 1971, Standard on Protective Ensemble for Structural Fire Fighting and Proximity Fire Fighting, (2013) Edition, which is hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(d) Protective garments or clothing ordered or purchased on or after July 1, 2017, for use in structural or proximity fire fighting shall meet the certification, labeling, design, performance, and testing requirements of NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2013 Edition, which is hereby incorporated as by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(e) Hand protection ordered or purchased on or after July 1, 2017, for use in structural or proximity fire fighting shall meet the design, performance, testing and certification requirements of NFPA 1971, Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2013 Edition, which is hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(f) Protective footwear ordered or purchased on or after July 1, 2017, for use in structural or proximity fire fighting shall meet certification, labeling, design, performance and testing

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requirements of NFPA 1971, Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, (2013) Edition, which is hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(g) CBRN ensembles, or parts thereof (which include garments, helmet, gloves, footwear interface components, and hood when hood is not already part of protective garment), ordered or purchased on or after July 1, 2017 shall meet the certification, labeling design, performance, and testing requirements of NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2013 Edition, which is hereby incorporated reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(h) Personal Alert Safety Systems (PASS) Purchase Quality Standards. Alarm devices ordered or purchased on or after July 1, 2017 shall meet the certification, labeling, design, performance and testing requirements of NFPA 1982, Standard on Personal Alert Safety Systems (PASS), 2013 Edition, which is hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(i) Open circuit self-contained breathing apparatus (SCBA) purchased on or after July 1, 2017 shall meet the certification, labeling, design, performance and testing requirements of NFPA 1981, Standard on Open Circuit Self-Contained Breathing Apparatus for Emergency Services, 2013 Edition, which is hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Add a new section to read:

§3402.2 Personal Protective Equipment Purchase Quality Standards for Wildland Fire Fighting

(a) Wildland fire fighting personal protective clothing and equipment ordered or purchased on or after July 1, 2017 shall meet the requirements of NFPA 1977, Protective Clothing and Equipment for Wildland Fire Fighting, 2011 or 2005 Edition, which are hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

(b) Fire Shelter Purchase Quality Standards. Fire shelters ordered or purchased on or after July 1, 2017 shall meet or exceed the US Department of Agriculture, Forest Service Specification for Forest Fire Shelter, 5100-606C (August 22, 2011), which are hereby incorporated by reference. In addition to any other applicability, the aforementioned purchase quality standards apply to discretionary equipment orders or purchases.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Add a new section to read:

§ 3402.3 Selection, Inspection, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting

(a) Selection

(1) Risk or Hazard Assessment. The employer shall perform a risk assessment to include, but not limited to, the hazards that can be encountered by structural or proximity fire fighting based on the following: [Is this provision relevant to wildland fire fighting?]

(A) Type of duties performed

(B) Frequency of use of fire fighting ensemble elements

(C) Organization experiences

(D) Incident operations

(E) Geographic locations and climate

(F) Likelihood or response to chemicals, biological agents, and radiological particulate hazard (CBRN) terrorism incident.

(2) The employer shall select protective ensembles based on the risk or hazard assessment.

(3) The employer shall ensure that the ensembles elements selected interface properly with other personal protective items used by employees.

(4) The equipment selected by the employer shall be in accordance with the requirements of this Article.

(5) The employer shall select PPE that properly fits each firefighter.

(b) Inspection

(1) Soiled or Contaminated.

(A) Ensembles deemed or suspected to be contaminated shall be isolated, tagged, and bagged on the scene.

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(B) Any ensemble that are found to be soiled or contaminated shall be cleaned or decontaminated before any additional inspection is initiated.

(C) Ensembles contaminated by CBRN agents shall be removed from service.

(2) Routine Inspection. Employee shall inspect the protective ensemble after each use.

(A) Each element of the fire fighting protective ensemble shall be inspected using the criteria detailed on the checklist located in Appendix A of Article 108. [The alternative is to list inspection requirements in NFPA 1851, Section 6.2 in this subsection]

(B) Deficiencies found during the routine inspection shall be evaluated for advanced cleaning, advanced inspection, repair, or replacement.

(3) Advanced Inspection. [Who does this in-house? Who contracts this out to an ISP?]

(A) Advanced inspection includes necessary testing listed in subsection (b)(3)(F). Advanced inspection shall be performed by the element manufacturer, trained organization, a verified organization or a verified ISP.

(B) Advanced inspection of all protective ensemble elements shall be conducted at least once a year or whenever routine inspection indicates that a problem could exist. [What kind of deficiencies during routine inspection should trigger advanced inspection (see checklist in Appendix A)?]

(C) Each element of the fire fighting protective ensemble shall be inspected using the criteria listed for advance inspection detailed in the checklist located in Appendix B of Article 108. [NFPA 1851, Chapter 6. 3]

Note: Employers or organizations may create their own checklist as long as they include all the inspection criteria.

(D) The findings of the advanced inspection shall be documented. Records of the inspection shall be maintained one year after the protective ensemble is removed from service.

(E) Complete liner inspection shall be in accordance with Appendix B. Complete Liner Inspection and water penetration barrier test shall be conducted after the protective garment has been in service for 3 years and annually thereafter.

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(F) Tests for the evaluation of liners (Garment only). Test procedures shall be in accordance with Chapter 12 of NFPA 1851(2014), which are incorporated by reference [Discuss if the testing procedures should be in an Appendix. Discuss the timing of the tests]

1. Light Evaluation test shall be conducted annually.

2. Leakage Evaluation test shall be conducted annually.

Exception to (b)(3)(F)1. and 2.: Complete Liner inspection t and Water Penetration Barrier Test were performed in lieu of Light Evaluation and Leak Evaluation tests.

3. Water Penetration Barrier Evaluation shall be conducted on the third year and annually thereafter.

(G) All CBRN protective ensembles shall be inspected according to the manufacturer's instructions.

(c) Cleaning. Employers shall provide a means for having ensemble and ensemble elements cleaned and decontaminated.

(1) Contaminated ensembles and elements.

(A) Contaminated ensembles and elements shall be isolated during the incident personnel decontamination process and removed from service until the contaminant or suspected contaminant is identified and elements can receive specialized cleaning.

(B) Where possible and where the contaminant and its source is identified, the organization shall consult the supplier or manufacturer of the contaminant and the manufacturer of the ensemble and ensemble elements with regards to decontamination procedures.

(C) Contaminated clothing shall be cleaned by personnel trained in specialized cleaning of ensembles contaminated with hazardous materials.

(D) The employer's blood borne pathogens exposure control plan shall contain procedures relating to the cleaning and handling of personal protective equipment contaminated with other potentially infectious material.

(2) Routine cleaning. The employer shall ensure that contaminated or soiled protective garments are cleaned using the manufacturer's instruction.

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(A) In the absence of manufacturer's instruction, the employer shall use cleaning procedures listed in Appendix C [An example of this is Appendix B-2 to Section 5144 http://www.dir.ca.gov/Title8/5144b_2.html]

(B) Spot cleaning of garments shall be considered as part of routine cleaning. Cleaning of the entire garment shall be in accordance with subsection (c)(3) advanced cleaning.

(C) If routine cleaning fails to render the ensemble element(s) sufficiently clean for service, the fire fighting ensemble shall receive advanced cleaning.

(3) Advance cleaning.

(A) Advanced cleaning shall be performed by the element manufacturer, a manufacturer trained organization, a verified organization or verified ISP (Independent Service Provider).

(B) Fire fighting ensembles that are soiled or contaminated shall receive advanced cleaning prior to reuse.

(C) Fire fighting ensembles shall receive advanced cleaning at least once a year.

(D) Fire fighting ensembles shall receive advanced cleaning in accordance with manufacturer's instructions. In absence of manufacturer's instruction, advanced cleaning procedures shall be in accordance with Appendix D. [NFPA 1851, Section 7.3.6 through 7.3.8].

(d) Repair

(1) All repairs shall be performed by the original manufacturer, a verified ISP who has received training, or a member of the organization who has received training.

(2) Training shall be provided by an element manufacturer or a verified ISP in the repair of the ensemble and ensemble elements.

(3) Soiled or contaminated ensemble or ensemble elements shall be cleaned or decontaminated before repair is initiated.

(4) Repairs shall be performed in accordance with Chapter 8 of NFPA 1851 (2014), which is hereby incorporated by reference.

(e) Storage

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(1) Ensembles or ensemble elements shall be stored in a manner that prevents damage from contamination, UV degradation, and temperatures extremes (below 32 °C and above 82 °C).

(2) Ensembles or ensemble elements shall be clean and dry before storage.

(3) Protective ensembles storage areas shall be clean, dry, and well ventilated.

(4) Proximity fire fighting protective coat and trouser elements shall be stored by hanging to limit the damage caused by creasing and shall not be stored folded.

(f) Removal from Service

(1) The employer shall develop specific criteria for the removal of fire fighting ensemble and ensemble elements from service.

(2) [Discussion: When should fire fighting ensembles be retired?]

(3) Fire fighting ensembles that are removed from service shall be destroyed or disposed in a manner that prevents further use in any fire fighting or emergency activities.

(4) Protective ensembles contaminated with CBRN terrorism agents shall be immediately removed from service and shall not be used.

(g) Independent Service Provider (ISP). ISP shall be verified in accordance with Chapter 11 of NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting. [Chapter 11 of NFP 1851].

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend §3403 to read:

§3403. ~~Head, Helmet, Eye and Face Protection.~~

(a) General. Head protection shall be provided for each fire fighter, and shall be maintained in a location of readiness for immediate response to fires and like emergencies. Head protection shall be worn by fire fighters whenever they are exposed to head injury hazard. Head protection is normally provided for fire fighters through the use of helmets.

~~(b) Minimum Requirements, Structural Fire Fighting.~~

~~(1) Labeling. Helmets ordered or purchased after January 1, 1988, for use in structural fire fighting shall be labeled as meeting the requirements contained in NFPA-1972 (1985) "Structural Fire Fighters' Helmets." While the helmets are in service: [See new section 3402.1]~~

~~(A) Section 3-8 "Ear Covers" shall be optional when protection required by Section 3405 is provided.~~

~~(B) Section 3-9 "Faceshields" shall be optional when protection required by Section 3404 is provided.~~

~~(C) Section 3-10 "Fluorescent Retroreflective Markings" shall be optional. [no longer optional]~~

~~(2) Helmets ordered, purchased and/or placed in service prior to January 1, 1988, for use in structural fire fighting shall meet the performance, construction, and testing requirements of the National Fire Safety and Research Office, National Fire Prevention and Control Administration, U. S. Department of Commerce contained in "Model Performance Criteria for Structural Fire Fighters' Helmets, dated August, 1977," with the following additional requirements:~~

~~(A) The helmet shall be compatible with the breathing apparatus face piece. [addressed in 3402.3(c)]~~

~~(B) Visibility and reflectivity shall be optional. [no longer optional]~~

~~(C) Earflaps shall be optional when protection required by Section 3405 is provided.~~

~~(D) A durable label shall be permanently attached and shall include the following information:~~

~~1. Name or designation of manufacturer;~~

~~2. Month and year of manufacture;~~

~~3. Lot Number; and~~

~~4. Model designation.~~

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(b) Structural Fire Fighting Helmets.

(1) Helmets in service shall bear a label stating:

“THIS STRUCTURAL FIRE FIGHTING PROTECTIVE HELMET
MEETS THE HELMET REQUIREMENTS OF THE NFPA 1971, (xxxx) EDITION”

(2) Helmet shall consist of at least all of the following assembled components:

(A) Shell

(B) Energy absorption system

(C) Retention system

(D) Fluorescent and retroreflective trim

(E) Ear covers

1. It shall be donned in the proper wearing position as specified by the helmet manufacturer.

(F) Faceshield or goggles or both.

1. Faceshield or goggles shall be used as required in Subsection (d).

2. Where a faceshield is used with the helmet, the faceshield component shall be attached to the helmet.

3. Where the goggle component is used with the helmet, the goggles shall be permitted to be unattached, not assembled to the helmet.

(3) Helmets shall have fluorescent and retroreflective trim on the shell exterior.

(c) Proximity Fire Fighting Helmets.

(1) Helmets in service shall bear a label stating:

“THIS PROXIMITY FIRE FIGHTING PROTECTIVE HELMET
MEETS THE HELMET REQUIREMENTS OF THE NFPA 1971, (xxxx) EDITION”

(2) Helmet elements shall consist of at least the following assembled components:

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(A) Shell

(B) Energy absorbing

(C) Retention system

(D) Faceshield

1. Faceshields shall be attached to the helmet.

(E) Shroud

1. The shroud shall be attached to the helmet and shall be designed to interface with a specific helmet.
2. The shroud shall be permitted to be part of a helmet outer cover, where provided.

(F) Cover (where separate from the shroud)

(3) Helmet shall be permitted to have an outer cover to provide radiant reflective protection for the exterior of the helmet shell, including the upper surface of the brim, and the brim edge. This helmet cover shall be permitted to be removable.

(4) The helmet shroud component shall consist of an outer shell, moisture barrier, and thermal liner. This composite shall be permitted to be configured as single layer or multiple layers; however, all the layers shall be permanently attached together around the edges. [From the 2007 Edition, is this still true?]

(5) Helmet shroud in service shall bear the label:

“FOR COMPLIANCE WITH THE PROXIMITY FIRE FIGHTING REQUIREMENTS OF NFPA 1971(XXXX), THIS SHROUD CAN ONLY BE USED WITH THE FOLLOWING NOTED HELMETS(S)(helmet manufacturer’s name and specific model)”

[NFPA1971, 2007 Edition (Section 5.3.4)]

or

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“FOR COMPLIANCE WITH THE PROXIMITY FIRE FIGHTING REQUIREMENT OF NFPA 1971-2013, THIS (*shroud or cover*) CAN ONLY BE USED WITH THE FOLLOWING NOTED HELMETS and AND ADDITIONAL ITEM(S): (*helmet manufacturer’s name and specific model*)”

Exception: Helmet cover is part of the shroud

(d) Face and Eye Protection

(1) Employees exposed to eye injury hazards shall be protected in accordance with the provisions of Section 3382. [came from 3404 (a)(1). I am pondering striking this out because it addresses other non-relevant hazards like laser, welding and it references an older ANSI Z87.1]

(2) Faceshield/goggle components shall meet the respective requirements [Sections xx of ANSI Z87.1] for goggles or faceshields and be marked “Z87” in accordance with the ANSI/ISEA Z87.1, Occupational and Educational Personal Eye and Face Protection Devices (XXXX) [2013 edition references the 2010 edition of ANSI. The 2007 edition does not reference a specific ANSI edition]

(3) Face protection (face shield) shall be in addition to the primary eye protection unless the self-contained breathing apparatus (SCBA) is being used.

(4) The full facepiece of SCBA shall be considered as face and eye protection when worn.

(5) If the facepiece has a face-mounted regulator that when disconnected provides a direct path for flying objects to strike the face or eye, the facepiece shall have the regulator attached in order to be considered as face and eye protection.

(6) When operating in a hazardous area at an emergency scene without a full-face respirator, employees shall wear primary eye protection that is designed to protect the eyes from the hazard.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend §3404 to read:

§3404. ~~Eye and Face Protection.~~ [Moved to Section 3403] Protective Hood Interface [Relocated from 3405, known as ear and neck protection].

~~(a) General.~~

~~(1) Employees exposed to eye injury hazards shall be protected in accordance with the provisions of Section 3382.~~ [Moved to Section 3403]

~~(2) In addition to the requirements of Section 3382, and wherever eye and face protection is not provided by the breathing apparatus facepiece, the face of the fire fighter engaged in structural fire fighting activities shall be protected by one or more of the following means, or other equivalent methods when exposed to injurious heat or flame:~~

~~(A) Face shield attached to the helmet;~~

~~(B) Heat and flame resistant hood;~~

~~(C) High collar and throat strap.~~

~~(b) Face Shields. Face shields of plastic or glass shall meet the optical qualities, impact resistance and light transmission standards specified in either the ANSI Z87.1 (1979) or ANSI Z87.1 (1989, and revision Z87.1a-1989), "Practice for Occupational and Educational Eye and Face Protection", which are hereby incorporated by reference. Face shields constructed of other materials such as wire mesh, shall provide visibility not less than required by ANSI Z87.1. All face shields shall be capable of withstanding heat in accordance with the provisions of Section 3403(b).~~

~~(c) Hood and Coat Collars. Such devices shall be constructed and tested in accordance with the provisions of Section 3406, Body Protection.~~

(a) Hoods shall cover the head, face, and neck areas, but not including the face opening.

(b) Hoods in service shall bear label:

"THIS STRUCTURAL FIRE FIGHTING PROTECTIVE HOOD MEETS THE REQUIREMENTS
OF NFPA 1971, XXXX EDITION"

or

"THIS PROXIMITY FIRE FIGHTING PROTECTIVE HOOD MEETS THE REQUIREMENTS OF
NFPA 1971, XXXX EDITION" [Is this a current 2013 NFPA (Section 5.3) requirement?]

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(c) Where the hood is designed to be used with a specific self-contained breathing apparatus (SCBA) facepiece(s), it shall have a label stating:

“FOR COMPLIANCE WITH THE STRUCTURAL FIRE FIGHTING REQUIREMENTS OF NFPA 1971, THIS HOOD CAN ONLY BE USED WITH THE FOLLOWING NOTED SCBA FACEPIECE(S): (SCBA FACE PIECES(S), MODEL(S), AND SIZE(S))

[Is there a proximity fire fighting counterpart to this provision? (shroud)]

(d) Hoods shall be permitted to be integrated with the protective coat.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend §3405 to read:

§3405. ~~Ear and Neck Protection.~~ [Relocated to 3404] Body Protection. [Relocated from 3406]

(a) ~~Protection against burns or injury to the ears and neck shall be provided by one or more of the following means, or other equivalent methods:~~

(1) ~~Helmet configuration;~~

(2) ~~Ear flap attachment to helmet;~~

(3) ~~Flexible neck protector cape or winter liner worn with helmet;~~

(4) ~~Flared neck shield attached to brim of helmet;~~

(5) ~~Hood, shroud or snood;~~

(6) ~~High collar and throat strap.~~

(b) ~~Fabric specified in this section shall be constructed and tested in accordance with the provisions of Section 3406, Body Protection.~~

(c) ~~Non-fabric materials shall meet heat and flame resistance requirements of Section 3403, Head Protection.~~

(a) Body protection shall be provided for each fire fighter when exposed to the hazards of structural and proximity fire fighting activity. Body protection shall consist of structural and proximity fire fighting protective coat, trouser, and coverall elements of the protective ensemble. A combination of protective coat, trousers, and coverall elements, shall be worn on all structural and proximity fires. [Relocated from 3406(a) with modifications]

(b) Structural and proximity fire fighting protective garments.

(1) Structural or proximity fire fighting garment in service shall bear a label stating:

“THIS STRUCTURAL FIRE FIGHTING PROTECTIVE (*garment, coat or coverall*)
MEETS THE HELMET REQUIREMENTS OF THE NFPA 1971, (xxxx) EDITION”

or

“THIS PROXIMITY FIRE FIGHTING PROTECTIVE (*garment, coat or coverall*)
MEETS THE (Coat or Coverall) REQUIREMENTS OF THE NFPA 1971, (xxxx) EDITION”

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(2) Garments shall consist of a composite of an outer shell, moisture barrier, and thermal barrier.

(3) Garments shall have a means of securing the moisture barrier and thermal barrier to the outer shell.

(4) Garment moisture barriers and thermal barriers, or materials shall extend at least to the neckline seam or coat, or least to the waistline seam of trousers, and shall extend at least to within 3 inches of the bottom outer shell hems of both coats and trousers.

(5) For coats, the moisture barriers and thermal barriers of material shall extend at least within 1 inch of the sleeve ends of the outer shell and shall be attached at or adjacent to the end of the coat sleeves, unless those barrier layers terminate as a glove interface that provide continuous thermal protection.
[\[Is there a critical difference between the 2007 and 2013 edition, Section 6.1.4.1?\]](#)

(6) For trousers, moisture barriers and thermal barriers or materials meeting the performance requirement of NFPA 1971, shall be attached to the trouser legs, unless those barriers layers terminate in the booties.

(7) Each coat element shall have a Drag Rescue Device (DRD) installed in the upper torso portion of the garment, accessible from the exterior of the garment.

(8) Coats shall have a composite collar at least 3 inches in height at any point when measured from the top of the collar down. It shall incorporate a closure system.

(9) Each coat sleeve shall have a protective wristlet or other interface component permanently attached to the coat sleeve.

(10) Trousers shall provide protection to the lower torso and legs, excluding ankles and feet.

(11) Where trousers incorporate booties, the booties shall cover the entire foot and ankle.

(c) Additional requirement for structural fire fighting protective garment elements only.

(1) Garment shall have a fluorescent and retroreflective trim permanently attached to the outer shell of the garment.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend §3406 to read:

§3406. ~~Body Protection.~~ [Relocated to Section 3405] Hand and Wrist Protection

~~(a) Body protection shall be provided for each fire fighter when exposed to the hazards of structural fire fighting activity. Body protection shall consist of turnout clothing or an appropriate combination of a turnout coat and protective clothing meeting the requirements of Section 3406(c).~~ [Relocated Section 3405 with modifications]

~~(b) Turnout Clothing. Performance, construction, testing and certification of fire fighter turnout clothing shall be at least equivalent to the requirements of National Fire Protection Association (NFPA) publication 1971 (1981), "Protective Clothing for Structural Fire Fighting," with the following permissible variations in those requirements:~~ [outdated and specs below is part of the performance, testing, and certification requirements of the NFPA stds]

~~(1) Liner may be detachable but the shell shall not be used as turnout clothing without the liner.~~

~~(2) To achieve increased ventilation of trapped body heat, the protective clothing outer shell and impermeable vapor barrier may be penetrated by ventilation openings protected by nonmetallic flame resistant materials equal to this standard. Openings in the coat shall be restricted to the underside of the upper arm, and the upper portion of the front and back. Openings in the trousers shall be restricted to the areas of the groin and the outseam of the leg between the knee and the waist band. Water deflecting flaps shall be required for all openings except underarm and groin area openings. Openings in the liner are not permitted except underarm and groin area unless protected by an insulating flap. Vents shall be made of nonmetallic flame resistant materials equal to this standard.~~

~~(3) Tearing strength of the outer shell shall be a minimum of eight pounds in any direction.~~

~~(4) Flame resistance, including that of trim, shall not exceed:~~

~~(A) 2.0 seconds after flame (maximum)~~

~~(B) 8.0 seconds after glow (maximum).~~

~~(5) The outer shell and lining may char or discolor but must retain heat resistance as specified in Section 3406(b)(4) and shall not separate or melt when placed in a forced air laboratory oven at a temperature of 500 F (260 C) for a period of 5 minutes.~~

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~~(c) Protective Clothing. Protective clothing, other than turnout clothing, shall meet the following minimum performance requirements:~~

~~(1) Flame Resistance. When tested in accordance with Federal Test 191, Method 5903.2, "Flame Resistance of Cloth, Vertical" (Standard small scale test), test results shall not exceed the following limits:~~

~~(A) 2.0 seconds after flame (maximum)~~

~~(B) 8.0 seconds after glow (maximum)~~

~~(C) 6.0 inches average char length.~~

~~(2) Ignition of the material shall not produce any melting and dripping of molten or flaming material. It is specifically required that upon exposure to flaming ignition, or to heat sufficient to char the fabric, the material will not adhere to the skin of the wearer so as to cause or contribute to the severity of burns.~~

~~EXCEPTION: Outer garments of 100% wool, with a weight of at least 14 ounces per lineal yard of 54 inch width shall be considered as sufficiently flame resistant for such use.~~

~~(3) Certification. Garments shall be certified to meet the requirements of Section 3406(c)(1), flame resistance; and as defined in Section 3402.~~

~~(4) A durable label shall be permanently attached and shall include the following information:~~

~~(A) Lot Number;~~

~~(B) Name and number of specified test; and~~

~~(C) Date of specified test.~~

~~(d) Turnout coats in combination with turnout trousers, or turnout coats and protective clothing meeting the requirements of Section 3406(c) shall be worn on all structural fires. Body protection provided for other than structural fires shall be appropriate for the potential hazards.~~

(a) Protective gloves shall be provided for each fire fighter when exposed to the hazards of structural and proximity fire fighting activity. Such protective gloves shall be properly sized and suitable to the hazards encountered in fires and fire related emergencies. [Relocated from 3407 with modification]

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(b) Protective gloves for fire fighters shall be made of durable outer material designed to withstand the effects of flame, heat, vapor, liquids, sharp objects and other hazards that are encountered in fire fighting.

(c) Structural and proximity fire fighting protective gloves shall bear the label stating:

“THIS STRUCTURAL FIRE FIGHTING PROTECTIVE GLOVE MEETS THE REQUIREMENTS
OF NFPA 1971 (xxxx)”

OR

“THIS PROXIMITY FIRE FIGHTING PROTECTIVE GLOVE MEETS THE REQUIREMENTS
OF NFPA 1971 (xxxx)”

(d) A durable label shall be permanently attached to each glove. Labeling may be accomplished by stamping, embossing, affixing, or other suitable method and shall include the following information: [relocated from Section 3407(g), proposing to delete]

(A) Lot Number;

(B) Reference to specified test; and

(C) Date of successful test.

(e) Gloves shall be permitted to be provided with either a gauntlet or glove wristlet.

(f) Gloves body shall extend 2 inches beyond the wrist crease.

(g) The glove shall have a label indicating size.

(h) Proximity fire fighting protective gloves shall not have any hardware.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend §3407 to read:

§3407. ~~Hand and Wrist Protection.~~ [\[Relocated to 3406\]](#) ~~Foot Protection~~ [\[Relocated from 3408\]](#)

~~(a) Protective gloves shall be provided for each fire fighter when exposed to the hazards of structural fire fighting activity. Such protective gloves shall be properly sized and suitable to the hazards encountered in fires and fire related emergencies.~~ [\[Relocated to 3406\(a\) with modifications\]](#)

~~(b) Protective gloves for fire fighters shall be made of durable outer material designed to withstand the effects of flame, heat, vapor, liquids, sharp objects and other hazards that are encountered in fire fighting.~~ [\[Relocated to 3406\(b\)\]](#)

~~(c) Thermal insulation for protective gloves shall be sufficient to limit the inside surface temperature of the glove material (in contact with the hand) to no more than 111o F (44o C) when subjected to the tests specified in subparagraphs 1, 2 and 3.~~ [\[labeling requirements certifying that it meets NFPA requirements addresses the performance requirements\]](#)

~~(1) Gloves shall be preconditioned in accordance with Federal Test 191, Method 5903.2.~~

~~(2) The palm of the glove shall be exposed to a conductive heat load of 932o F (500o C) for a period of 5 seconds at 4 psi pressure using an object made of iron with 3.14 in² surface area and sufficient mass to induce the pressure without assistance.~~

~~(3) The back of the glove shall be exposed to a stable 1.0 watt/cm² radiant heat load for a period of 1 minute.~~

~~(d) Protective glove material and pattern shall allow the dexterity of hand and finger movement, a sense of feel for objects, when handling fire fighting equipment, and a satisfactory grip when handling halyards. Gloves shall have separate finger compartments and shall have an integral wristlet not less than 4 inches in length unless other wrist protection is provided as permitted in Section 3407(e).~~

~~(1) Dexterity. Dexterity shall be evaluated using a standardized procedure known as the Bennett Dexterity Test. No more than 130% of baseline time shall be accomplished.~~

~~(2) Grip Test. Grip testing shall be evaluated with the use of a 3/8 inch diameter Manila halyard attached to a spring scale. Bare handed lift capability shall be baseline weight. Weight pulling capacity dry shall be no less than 80% of baseline. Weight pulling capacity wet shall be no less than 70% of baseline. Gloves and halyards shall be preconditioned dry and wet prior to test.~~

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~~(3) Preconditioning:~~

~~Dry—Gloves and halyards shall be preconditioned at 25o C. for a period of 4 hours.~~

~~Wet—Gloves and halyards shall be thoroughly soaked by immersing in water for a minimum of 30 minutes prior to testing.~~

~~(4) Test Requirements. Gloves shall be tested dry, then water soaked as required and tested (without re-drying) within one minute after removal from the soak.~~

~~(e) Protection against burns or injury to the wrist shall be provided by one or more of the following means or other equivalent methods:~~

~~(1) A minimum 4 inch wristlet attached to the gloves.~~

~~(2) An extended wristlet of sufficient length, attached to the sleeve of the turnout coat, to completely cover the wrist area under all conditions.~~

~~(f) Fabric specified in this section shall be constructed and tested in accordance with the provisions of Section 3406, Body Protection.~~

(a) Foot protection shall be provided to and worn by fire fighters while engaged in structural and proximity fire fighting activity.

(b) The use of foot protection shall be coordinated with the wearing of the protective clothing system to ensure full body protection.

(c) Footwear shall consist of at least the following: sole with heel, an upper with lining, a puncture resistant device, an insole, a ladder shank, or whole sole equivalent, and an impact and compression resistant toe cap.

(d) Protective footwear in service shall bear a label stating:

“THIS STRUCTURAL FIRE FIGHTING PROTECTIVE FOOTWEAR MEETS THE
REQUIREMENTS OF NFPA 1971, (XXXX) EDITION”

or

“THIS PROXIMITY FIRE FIGHTING PROTECTIVE FOOTWEAR MEETS THE
REQUIREMENTS OF NFPA 1971, (XXXX) EDITION”

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(e) Protective footwear over 10 years old from the initial date of use shall be discarded.

NOTE: Authority and reference cited: Section 142.3, Labor Code.

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Add a new §3407 to read:

§3407.1 CBRN Protective Ensemble for Structural and Proximity Fire Fighting Ensembles [Should this be included in the update? If yes, more revisions are forthcoming]

(a) CBRN ensembles purchased after July 1, 2017 shall meet the certification, labeling, design, performance, and testing requirements of NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2013 Edition.

(1) CBRN ensemble includes garments, helmet, gloves, footwear interface components, and hood when hood is not already part of protective garment.

(b) The employer shall ensure that the SCBA used is the one that is specified by the manufacturer of the ensemble.

(c) All hardware and external fitting shall be free of rough spots, burrs, or sharp edges that could tear the material.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend §3408 to read:

§3408. ~~Foot Protection.~~ Personal Alert Safety Systems (PASS)

~~(a) Foot protection shall be provided in accordance with Section 3385 for fire fighters while engaged in structural fire fighting activity.~~

~~(b) The use of foot protection shall be coordinated with the wearing of the protective clothing system to ensure full body protection.~~

~~(c) Turnout Boots. Fire fighter turnout boots shall meet the requirements of MIL-B-2885D (5-23-73) and amendment dated 12-31-75.~~

~~(d) In addition to the requirements of Section 3408(a), protective footwear other than turnout boots shall also provide:~~

~~(1) Slip resistant outsoles.~~

~~(2) Sole penetration as required in MIL-B2885D (1973) and amendment dated 1975 "Military Specifications for Firemen's Boots."~~

~~(3) Permanently attached, corrosion resistant midsoles.~~

~~(4) Firm ankle support in horizontal and vertical working loads.~~

~~(5) If used, corrosion resistant, lockable fasteners.~~

~~(6) Toe protection meeting the requirements of either the ANSI Z41 (1983) or (1991), classification 75, which are hereby incorporated by reference.~~

~~(7) Corrosion resistant ladder shanks.~~

~~(8) Durable outer shell materials withstanding the effects of flame, heat, sharp objects and other hazards encountered in fire fighting activities.~~

Definitions: [Should we move these definitions to Section 3402?]

Personal Alert Safety Systems (PASS). A device that continually senses for lack of movement of the wearer and automatically activates the alarm signal, indicating the wearer is in need of assistance; can also be activated to trigger an alarm.

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RF PASS. A PASS that contains an optional radiofrequency (RF) transceiver that enables the PASS to automatically transmit an alarm signal and receive evacuation alarms via RF signals; responds to an audible or visual alarm.

Base Station. A RF transceiver used in conjunction with a RF PASS that monitors for an alarm signal and emits an audible and visual signal when alarm is received. The base station is capable of sending an evacuation alarm to the RF PASS.

(a) Firefighters shall be provided with and use a PASS device in emergency situations that involve entrapment hazards due to a possible structural collapse of any type or atmospheric hazards such as immediately dangerous to life and health (IDLH) atmospheres. PASS shall also be worn when directed by the incident commander or incident safety officer.

(b) PASSs in service shall meet the following minimum operational and performance requirements: [Criteria below come from NFPA 1982(2007)]

requirements.

(1) Mode Selection.

(A) PASS shall have a mode selection device or device to allow for the operation of at least 3 modes: (1) off, (2) alarm, (3) sensing. The mode selection device(s) shall be designed to provide automatic activation from the off mode to the sensing mode without the user setting the mode selection. All mode selection shall be protected against accidental change of operation or impact damage.

(B) The automatic activation shall include, but not limited to, being linked to activation of SCBA, being linked to removal from storage or transportation positions, by pull-away tether to a fixed position or by remote activation.

(C) Automatic activation shall be able to be manually switched from sensing mode to the alarm mode with the mode selection device, but shall not be able to be switched to remain in the off mode until the automatic activation is intentionally deactivated.

(2) Motion Sensing.

(A) PASS shall contain a motion sensing device, which will sound an alarm signal when PASS does not sense movement for 30 seconds, +5/-0 seconds.

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(B) Alarm devices shall be equipped with an audible means to warn of the malfunction of the motion sensing circuitry.

(3) Operational Signal. PASS shall emit an audible operational signal within 1 second of completing the required action to set PASS to the sensing mode, indicating to the user that the device is functioning properly.

(4) Pre-Alarm Signal.

(A) PASS shall have at least an audible primary pre-alarm signal that is distinct and different in sound from the alarm signal

(B) When the alarm signal is activated by the motion sensing device, the alarm signal shall be preceded by the pre-alarm signal, which shall sound for 10 seconds, +3/-0 seconds before the sounding of the alarm signal.

(5) Alarm.

(A) PASS shall sound the alarm signal when switched to the alarm mode. The alarm signal shall have a duration of at least 1 hour at a sound pressure level not less than 95 dBA.

(B) Any action to silence the alarm signal and the actual silencing of the alarm signal shall not permit PASS to remain in the off mode. The silencing of the alarm signal shall automatically reset the PASS to the sensing mode.

(6) Low Power Source Warning Signal. While in the sensing mode, PASS shall emit a recurrent audible low power warning signal when the power source is depleted to the level that will maintain the alarm signal of at least 95 dBA for at least 1 hour. This signal shall be distinct from the pre-alarm signals and the alarm signal.

(7) Alarm devices shall be intrinsically safe for use in a flammable or explosive atmosphere.

(c) Additional requirements for RF PASS

(1) Mode Selection.

(A) Base station units for RF PASS shall indicate on a visual display the presence of all RF PASS units that are in sensing mode.

(B) Base station units for RF PASS shall sound an audible alarm and indicate on visual display the presence of all RF PASS units that are in alarm mode.

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(C) Base station units for RF PASS shall utilize a different visual display to indicate sensing and alarm modes.

(2) Motion Sensing

(A) The base station associated with RF PASS shall receive the alarm signal within 30 seconds +5/-0 seconds of its transmission by the RF PASS, unless the RF communication has been lost.

(B) For RF PASS, the evacuation alarm shall be received within 30 seconds +5/-0 seconds of this transmission by the base station unless RF communication has been lost.

(3) Alarm signal

(A) The base unit and the RF PASS shall emit a recurrent visual loss of alarm signal alarm within 60 seconds of loss of RF communication. The visual alarm shall recur at a period no more than 20 seconds.

(B) For RF Pass, during the alarm signal, all other PASS signals shall be rendered inactive.

(C) For RF Pass, the alarm signal shall have a duration of at least 1 hour at the base station.

(d) Certification and Label and Information

(1) The employer shall maintain the certification and/or product label which contains the following information:

(A) Statement stating “THIS PASS MEETS THE REQUIREMENTS OF NFPA 1982, STANDARD ON PERSONAL ALERT SYSTEM (PASS), (XXXX) EDITION. DO NOT REMOVE THIS LABEL!”.

[Up to what year is acceptable? 2007 or 2013]

(B) Manufacturer name, identification, or designation; model name, number or designation; model name, number, or design; identification, lot, and serial number.

(2) The employer shall ensure that the PASS is recertified every year.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Amend §3409 to read:

§3409. Respiratory Protection.

(a) Approved Equipment.

(1) Approvals. Fire fighters exposed to harmful exposure in the course of their assigned activities shall be provided with, and shall use respiratory protective devices that are approved and certified in accordance with Section 5144, and the methods and requirements specified by the National Institute of Occupational Safety and Health (NIOSH) under 42 CFR part 84.

(2) ~~Permissible Devices-~~ Self-Contained Breathing Apparatus (SCBA)

(A) Open-circuit SCBA that does not meet the 1997 or later editions of NFPA 1981, Standard on Open-Circuit Self Contained Breathing Apparatus (SCBA) for Emergency Services shall be removed from fire service use. [10 year requirement]

(B) All open-circuit SCBAs in service shall be certified to be compliant with at least one of the following standards:

1. NFPA 1981, Standard on Open Circuit Self-Contained Breathing Apparatus for the Fire Service (1997).

2. NFPA 1981, Standard on Open-Circuit, Self-Contained Breathing Apparatus for Fire and Emergency Services (2002).

3. NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services (2007).

4. NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services (2013).

(C) SCBAs not certified compliant with (a)(2)(B) and shall be retired or upgraded to the 2013 edition of the NFPA, Standard on Open Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, in accordance with the SCBA manufacturer's and certification organization instructions.

(D)The employer shall ensure that open-circuit self-contained breathing apparatus (SCBA)s in service:

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“THIS SCBA MEETS THE REQUIREMENTS OF THE NFPA 1981 STANDARD ON OPEN-CIRCUIT SELF-CONTAINED BREATHING APPARATUS (SCBA) FOR EMERGENCY SERVICES, (XXXX) EDITION. DO NOT REMOVE THIS LABEL!”

~~(A) Respiratory protective devices provided for and used by fire fighters in structural fire fighting activity shall be limited to those types classified as self-contained breathing apparatus (SCBA), and combination breathing apparatus of the supplied-air positive-pressure type.~~

~~(B)~~ (E) Closed-circuit self-contained breathing apparatus shall not be used by fire fighters except where it has been demonstrated that long duration breathing apparatus is necessary. If such breathing devices are used, quantitative fit tests providing a minimum protection factor of 5,000 shall be performed on each individual using the long duration breathing apparatus. The quantitative fit test procedures shall be available for inspection by the Division.

1. Close-circuit SCBA shall be NIOSH certified with a minimum rated life of at least 2 hours and shall operate in the positive pressure mode only.

(b) General Requirements.

(1) Written Standard Procedures. The employer shall develop and implement comprehensive written standard operating procedures for the use, care, maintenance, and training relating to respiratory protective equipment in accordance with Section 5144 and ANSI Z88.2 (1980), “Practices for Respiratory Protection,” and ANSI Z88.5 (1981), “Practices for Respiratory Protection for the Fire Service.” The operating procedures required by this subsection are exempt from the prohibition of the use of contact lenses specified in ANSI Z88.2(1980) and ANSI Z88.5(1981). [Z88.5 is not active, ANSI Z88.2-2015, Section 7.2.8.3.2 states that contact lenses may be worn with respirators if permitted by the employer. The contact lens wearer shall practice wearing the respirator while wearing contact lenses.]

(2) When emergency conditions require the urgent multi-person use of the same facepiece, requirements of Section 5144(h) pertaining to cleaning and sanitation of the facepiece shall not apply.

(3) Operating Service Time. Respiratory protective devices provided for use by fire fighters shall have a rated service time of at least 30 minutes in accordance with the methods and requirements specified by NIOSH 42 CFR part 84.

Exception: Respiratory protective devices of less than 30 minutes rated service time shall only be used for escape, rescue and observation.

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~~(4) Automatic Warning Signal. Respiratory protective devices provided for use by fire fighters shall be equipped with an automatic device that produces an audible signal to warn the user that the remaining service time of the unit has been reduced to 20-25%. Means shall be designed and incorporated to indicate to the user that his alarm has been activated. All SCBA shall be equipped with a minimum of two independent End-of-Service-Time-Indicators (EOSTI), which is a warning device on an SCBA that warns the user that the end of the breathing supply is approaching. It shall consist of at least a sensing mechanism and a signaling device. [EOSTI is a 1997 requirement. Does the 1997 edition require 2 independent EOSTI?]~~

(A) The EOSTI alarm shall activate at 33%, +5/-0 percent of full cylinder pressure.

~~(5) Buddy Breathing. Approved self-contained breathing apparatus may be equipped with either a “buddy breathing” device or a quick disconnect valve, even if these devices are not certified by NIOSH. If these accessories are used, they shall not cause damage to the apparatus, or obstruct the normal operation of the apparatus. If an open-circuit SCBA is equipped with Emergency Breathing Safety System (EBSS) Design Requirements or buddy breather, it shall meet Section 6.6 of the NFPA 1981 Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, (2013).~~

(6) Air Cylinders. Approved self-contained compressed air breathing apparatus may be used with approved cylinders from other approved self-contained compressed air breathing apparatus provided that such cylinders are of the same capacity and pressure rating. All compressed air cylinders used with self-contained breathing apparatus shall meet United States Department of Transportation (DOT) and NIOSH criteria. [Should we reference NFPA 1989, Standard on Breathing Air Quality for Emergency Services Respirator Protection (2013)?]

(c) Positive Pressure. Except as permitted in Section 3409(a)(2)(B), all compressed air self-contained breathing apparatus used in fire fighting activity shall be of positive pressure type.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code

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§3410. Wildland Fire Fighting Requirements.

[Need for risk assessment?

How about Wildland Urban Interface? Does this affect PPE selection?

What are your typical operations in the Wildland Urban Interface/wildland environment?

What is your current station uniform configuration?

How does that integrate with the PPE?

How do you prepare your employees for a rigorous, high heat shift?]

(a) Employer shall provide wildland fire fighting personal protective clothing and equipment that meet the requirements of NFPA 1977, Protective Clothing and Equipment for Wildland Fire Fighting, 2011 or 2005 Edition, which are hereby incorporated by reference.

(a) (b) Head Protection.

(1) Head protection shall be worn by fire fighters whenever they are exposed to head injury hazard. Head protection shall be provided for each fire fighter, and shall be maintained in a location of ready availability to the fire fighter.

(2) Emergency Pick-up Labor. Head protection shall be provided for emergency pick-up labor in a hazardous environment on wildland fires and shall consist of structural fire fighting helmets or industrial hard hats or military helmet liners. Helmets and liners shall meet ANSI Z89.1 ~~(1969)~~ (2014 or 2009) standards, and may be either Type 1 or 2, any Class. [What is emergency pick up labor? Section 3381 of GISO references the ANSI 1997, 2003, 2009 std]

~~(3) Helmets. Minimum Helmet Requirements. Configuration. The helmet shall conform to ANSI Z89.1 (1969) full brim (Type 1) Class D, or brimless with peak (Type 2) Class A, or structural fire helmets as specified in Section 3403. Provision shall be incorporated for attachment of accessories without shell penetration. Retention shall be provided by chin strap, nape strap or other equivalent means.~~

(A) Protective helmets shall meet the requirements for Type 1, Class G helmets as specified in ANSI/ISEA Z89.1. Industrial Head Protection.

(B) Protective helmets shall consist of at least a shell with a brim or peak, a means of absorbing energy, a suspension system with sweatband, a chin strap, a nape device, goggle clips, and retroreflective markings.

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(C) Helmets shall not have any metal hardware permanently mounted to the outer surface of the helmet shell.

(D) All helmets shall have a retroreflective markings on the exterior of the shell.

~~(4) Weight. Head protection, except the helmets specified in Section 3403, complete with suspension and headband, but exclusive of accessories, shall not weigh more than 20 ounces.~~

~~(5) Heat Resistance. When placed in a forced air laboratory oven at a temperature of 300o F (149o C) for a period of five minutes, the helmet shell shall not undergo softening, melting, shrinking or other visible distortion. [check]~~

~~(6)~~(E) Labeling.

(1) Helmet shall bear the label stating:

“THIS WILDLAND FIRE FIGHTING PROTECTIVE HELMET MEETS THE REQUIREMENTS OF THE NFPA, 1977, STANDARD ON PROTECTIE CLOTHING AND EQUIPMENT FOR WILDLAND FIRE FIGHTING, (2005 or 2011) EDITION. DO NOT REMOVE THIS LABEL”

(B) Each helmet shall be durably and legibly labeled in a manner such that the label can be easily read without removing padding or any other permanent part, and shall include the following information:

Name or designation of manufacturer

Month and year of manufacture

Lot number

Model designation

~~(b)~~ (c) Eye Protection. Employees exposed to eye injury hazards shall be protected in accordance with the provisions of Section 3382. Eye protection shall have a means of attachment that is designed to be used with a wildland firefighter protective helmet. [Will be modified based on the outcome of Section 3403]

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(1) Each goggle lens shall bear the following: [NFPA 1977, Section 5.6.1.9, are they currently on the lenses?]

(A) The manufacturer's identifying mark or symbol

(B) The certification organization's label, symbol, or identifying mark.

(C) The statement "NFPA 1977, 2011 or 2005 Ed.

~~(e) Thermal Protection of the Ears and Neck. Protection against burns on the ear and neck shall be provided by one or more of the following means, or other equivalent methods, when fire fighters engaged in wildland fire fighting are exposed to injurious heat and flame: flared neck shield attached to brim of helmet; hood, shroud or snood; high collar with throat strap. Fabric specified for this purpose shall be constructed and tested in accordance with the provisions of Section 3410(d) for body protection. Similar protection shall be provided emergency pick-up labor when exposed to injurious heat and flame.—~~

(d) Face and Neck Shroud. Face and neck shroud shall cover the face and neck areas that are not covered by the helmet. The face opening is not considered as a gap in coverage.

(1) Face and neck shroud shall bear a label stating:

"THIS WILDLAND FIRE FIGHTING PROTECTIVE FACE/NECK SHROUD MEETS THE REQUIREMENTS OF NFPA 1977, STANDARD ON PROTECTIVE CLOTHING AND EQUIPMENT FOR WILDLAND FIRE FIGHTING, (2011 or 2005) EDITION, DO NOT REMOVE THIS LABEL!"

(2) Shrouds shall have a closure system. The closure system shall not come into contact with the face and neck when the shroud is positioned for use.

~~(d)~~ (e) Body Protection.

(1) Clothing directly exposed to fire environment and subject to flame impingement shall meet the requirements of Section 3406(e).

~~(2) Emergency Pick-up Labor. Flame resistant protective shirts shall be provided as soon as reasonably possible. Heavy duty work trousers of 100 percent cotton or 100 percent wool shall be considered as sufficiently flame resistant for the type of fire exposure normally experienced by this class of fire fighter and may be worn in lieu of other flame resistant type clothing.~~

(2) Protective garments shall bear a label stating:

"THIS WILDLAND FIRE FIGHTING PROTECTIVE GARMENT MEETS THE REQUIREMENTS OF NFPA 1977, STANDARD ON PROTECTIVE CLOTHING AND

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EQUIPMENT FOR WILDLAND FIRE FIGHTING, (2011 or 2005) EDITION, DO NOT REMOVE THIS LABEL!”

(3) Jackets, shirts and one-piece protective garment shall not have turn-up cuffs. Sleeve cuffs shall have a closure system that can be adjusted to provide a snug and secure fit around the wrist while wearing a protective glove.

(4) All garments that encompass the neck areas shall have a closure system at the neckline.

(5) Hardware of any garment shall not come into direct contact with the wearer’s body.

(6) One-piece garment torso closure systems shall extend from the top of the crotch area to the top of the garment at the neck.

(e) Hand and Wrist Protection. Protective Gloves

(1) Protective gloves shall be provided for each wildland fire fighter, properly sized and suitable to the hazards encountered in wildland fire fighting activities. Fire fighters shall wear protective gloves whenever exposed to a hazardous environment that may cause injury to the hand or wrist.

~~(A) Minimum Requirements. Protective gloves shall have a durable outer material of leather or treated fabric designed to withstand the effects of heat, flame or other hazards encountered in wildland fire fighting. Glove material and pattern shall allow dexterity of hand movement and sense of feel for objects. The exterior of the gloves shall be designed to be free of potential snags. Gloves shall be of the gunn cut pattern. [Is this still valid?]~~

(2) Protective glove shall bear the label stating:

“THIS WILDLAND FIRE FIGHTING PROTECTIVE GLOVE MEETS THE REQUIREMENTS OF THE NFPA, 1977, STANDARD ON PROTECTIVE CLOTHING AND EQUIPMENT FOR WILDLAND FIRE FIGHTING, (2005 or 2011) EDITION. DO NOT REMOVE THIS LABEL!”

(2) Wrist protection fabric shall meet the requirements of Section 3406(c) and shall consist of either:

~~(A) Integral knit wristlets of not less than four inches in length, attached to the gloves and designed to protect the wrist area when the arms are extended upward and outward from the body; or~~

~~(B) Wristlets, of sufficient length to completely cover the wrist area under all conditions, attached to the sleeves of the outer garment.~~

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~~(3) Emergency Pick-up Labor. Emergency pick-up labor exposed to hand injury hazard, and not equipped with gloves, shall be provided with gloves which meet these standards. [I don't see this in NFPA 1977]~~

(f) Foot Protection.

(1) Protective footwear shall be worn by fire fighters while engaged in wildland fire fighting activities.

(2) Protective boots in service shall bear a label:

“THIS WILDLAND FIRE-FIRGHTING PROTECTIVE FOOTWEAR MEETS THE REQUIREMENTS OF NFPA 1977, STANDARDS ON PROTECTIVE CLOTHING AND EQUIPMENT FOR E WILDLAND FIRE FIGHTING, (2011, 2005) EDITION. DO NOT REMOVE THIS LABEL!”

~~(3)-(2) Minimum Requirements. Protective footwear for fire fighters and emergency pick-up labor engaged in wildland fire fighting shall consist of heavy duty lace-type work boots with non-slip soles and heels, and shall provide firm ankle support. Leather tops shall be at least six inches in height measured from the bottom of the shoe heel sole with heel, upper insole, and shank with a minimum height of 8 inches.~~

(g) Fire Shelters. A fire shelter shall be provided and made immediately available for every fire fighter when engaged in fire fighting activities in wildlands as defined in these orders. **The fire shelter shall meet or exceed U.S. Department of Agriculture, Forest Service Specification for Forest Fire Shelter, 5100-320D.**

(h) Respiratory Protection

(1) The employer shall implement administrative controls whenever feasible.

(2) Control of harmful exposures by respirator protective equipment shall be in accordance with Section 5144.

(3) Wildland air purifying respirator shall be NIOSH approved as complying with NFPA 1984 or equivalent. [There is currently no NIOSH approved respirators that meet NFPA 1984]

(i) Chain saw protectors [For consideration]

(j) Load-Carrying equipment [For consideration]

(k) Driving Glove [Why do we need this? What does this protect against?]

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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Add Appendix A to read:

Appendix A
Routine Inspection of Personal Protective Equipment Checklist

Name: _____ **Date:** _____

Title: _____ **Fire Station:** _____

ASSIGNED EQUIPMENT							
<u>Item</u>	<u>Manufacturer</u>	<u>Year</u>	<u>New/Reassigned</u>	<u>Make</u>	<u>Model</u>	<u>Serial #</u>	<u>Date of Issue</u>
<u>Coat</u>							
<u>Pants</u>							
<u>Helmet</u>							
<u>Gloves</u>							
<u>Hood</u>							
<u>Footwear</u>							
<u>Eyewear</u>							

<u>Coat and trouser garments</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”)</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advance Cleaning</u>	<u>Advance Insp.</u>	<u>Replace</u>	<u>Repair</u>
<u>Coat and trouser garment elements shall be inspected for the following:</u>							
<u>1. Soiling</u>							
<u>2. Contamination</u>							
<u>3. Physical damage such as the following:</u>							
<u>(a) Rips, tears, and cuts</u>							
<u>(b) Damaged or missing hardware and closure systems</u>							
<u>(c) Thermal damage (charring, burn holes, or melting discoloration of any layer)</u>							
<u>4. Damaged or missing reflective trim</u>							
<u>5. Loss of seam integrity and broken or missing stitches</u>							
<u>6. Correct assembly and size compatibility of shell, liner, and the drag rescue device (DRD)</u>							
<u>Comments:</u>							
<u>Action Taken:</u>							

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<u>Hood</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”)</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Replace</u>	<u>Repair</u>
Hood elements shall be inspected for the following:							
1. <u>Soiling</u>							
2. <u>Contamination</u>							
3. <u>Physical damage such as the following:</u>							
(a) <u>Rips, tears, and cuts</u>							
(b) <u>Thermal damage (charring, burn holes, or melting discoloration of any layer)</u>							
4. <u>Loss of face opening adjustment</u>							
5. <u>Loss of seam integrity and broken or missing stitches</u>							
<u>Comments:</u>							
<u>Action Taken:</u>							

<u>Helmet</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”)</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Repair</u>	<u>Repair</u>
Helmet elements shall be inspected for the following:							
1. <u>Soiling</u>							
2. <u>Contamination</u>							
3. <u>Physical damage to the shell such as the following:</u>							
(a) <u>Cracks, crazing, dents, and abrasions</u>							
(b) <u>Thermal damage to the shell (bubbling, soft spots, warping, discoloration)</u>							
4. <u>Physical damage to the earflaps such as the following:</u>							
(a) <u>Rips, tears and cuts</u>							
(b) <u>Thermal damage (charring, burn holes, melting)</u>							
5. <u>Damaged or missing components of the suspension and retention systems</u>							
6. <u>Damaged or missing components of the faceshield/goggle system, including discoloration, crazing and scratches to the faceshield/goggle lens limiting visibility</u>							
7. <u>Damaged or missing reflective trim</u>							
8. <u>Loss of seam integrity and broken or missing stitches</u>							
<u>Comments:</u>							
<u>Action Taken:</u>							

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<u>Glove</u>	<u>"√" Condition</u>		<u>In Need of (Mark with an "X")</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Repair</u>	<u>Replace</u>
<u>Glove elements shall be inspected for the following:</u>							
1. <u>Soiling</u>							
2. <u>Contamination</u>							
3. <u>Physical damage such as the following:</u>							
(a) <u>Rips, tears, and cuts</u>							
(b) <u>Thermal damage (charring, burn holes, or melting discoloration of any layer)</u>							
(c) <u>Inverted liner</u>							
4. <u>Shrinkage</u>							
5. <u>Loss of elasticity or flexibility</u>							
6. <u>Loss of seam integrity and broken or missing stitches</u>							
<u>Comments:</u>							
<u>Action Taken:</u>							

<u>Footwear</u>	<u>"√" Condition</u>		<u>In Need of (Mark with an "X")</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Repair</u>	<u>Replace</u>
<u>Footwear elements shall be inspected for the following:</u>							
1. <u>Soiling</u>							
2. <u>Contamination</u>							
3. <u>Physical damage such as the following:</u>							
(a) <u>Cuts, tears, and punctures</u>							
(b) <u>Thermal damage (charring, burn holes, or melting discoloration of any layer)</u>							
(c) <u>Exposed or deformed protective toe, protective mid-sole, or shank</u>							
4. <u>Loss of water resistance</u>							
5. <u>Closure system component damage and functionality</u>							
6. <u>Loss of seam integrity and broken or missing stitches</u>							
<u>Comments:</u>							
<u>Action taken:</u>							

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<u>Drag Rescue Device (DRD)</u>	<u>"√" Condition</u>		<u>In Need of (Mark with an "X")</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Repair</u>	<u>Replace</u>
DRD							
1. Installation in garment							
2. Soiling							
3. Contamination							
4. Physical damage such as the following:							
(a) Cuts, tears, punctures, cracking, or splitting							
(b) Thermal damage (charring, burn holes, melting, discoloration)							
(c) Loss of seam integrity and broken or missing stitches							
Comments:							
Action taken:							

<u>Interface Components</u>	<u>"√" Condition</u>		<u>In Need of (Mark with an "X")</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Repair</u>	<u>Replace</u>
Interface components shall be inspected for the following:							
1. Soiling							
2. Contamination							
3. Physical damage							
4. Loss or reduction of properties that allow component to continue as effective interface (e.g. loss of shape or ability to remain attached to the respective element(s) where attachment is required)							
5. Loss of seam integrity and broken or missing stitches							
Comments:							
Action taken:							

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Additional Routine Inspection Requirements for Proximity Fire Fighting Protective Ensembles and Ensemble Elements

<u>Proximity Fire Fighting Coat and Trouser</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”)</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Replace</u>	<u>Repair</u>
<u>Proximity fire fighting coat and trouser garment elements shall be inspected for the following:</u>							
1. <u>Loss of reflectivity</u>							
2. <u>Loss of reflectivity coating(s)</u>							
3. <u>Delamination as evidenced by separation or peeling of the outer shell</u>							
<u>Comments:</u>							
<u>Action Taken:</u>							

<u>Proximity Fire Fighting Helmet Element Overcover</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”)</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Replace</u>	<u>Repair</u>
<u>Proximity fire fighting helmet element overcover shall be inspected for the following:</u>							
1. <u>Loss of reflectivity</u>							
2. <u>Loss of reflectivity coating(s)</u>							
3. <u>Delamination as evidenced by separation or peeling of the outer shell</u>							
4. <u>Damaged or missing reflective trim, if applicable</u>							
5. <u>Damage and functionality of the overcover to helmet attachment</u>							
<u>Comments:</u>							
<u>Action taken:</u>							

<u>Proximity Fire Fighting Shrouds</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”)</u>				
	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Replace</u>	<u>Repair</u>
<u>Proximity fire fighting shrouds shall be inspected for the following:</u>							
1. <u>Loss of reflectivity</u>							
2. <u>Loss of reflectivity coating(s)</u>							
3. <u>Delamination as evidenced by separation or peeling of the outer shell</u>							
4. <u>If applicable, damage and functionality of the shroud to helmet attachment</u>							
5. <u>Distortion of face opening resulting in gaps around the faceshield</u>							
<u>Comments:</u>							
<u>Action taken:</u>							

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<u>Proximity fire fighting helmets</u>	<u>"√"</u> Condition		In Need of (Mark with an "X")				
<u>Proximity fire fighting helmet elements shall be inspected for the following:</u>	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advance Insp.</u>	<u>Replace</u>	<u>Repair</u>
1. <u>Loss of faceshield reflectivity</u>							
2. <u>Loss of shell reflectivity, if applicable</u>							
<u>Comments:</u>							
<u>Action taken:</u>							

<u>Proximity fire fighting gloves</u>	<u>"√"</u> Condition		In Need of (Mark with an "X")				
<u>Proximity fire fighting glove elements shall be inspected for the following:</u>	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Replace</u>	<u>Repair</u>
1. <u>Loss of reflectivity</u>							
2. <u>Loss of reflective coating(s)</u>							
<u>Comments:</u>							
<u>Action taken:</u>							

<u>Proximity Fire Fighting Footwear</u>	<u>"√"</u> Condition		In Need of (Mark with an "X")				
<u>Proximity fire fighting footwear elements shall be inspected for the following:</u>	<u>Pass</u>	<u>Fail</u>	<u>Cleaning</u>	<u>Advanced Cleaning</u>	<u>Advanced Insp.</u>	<u>Replace</u>	<u>Repair</u>
1. <u>Loss of reflectivity</u>							
2. <u>Loss of reflective coating(s)</u>							
<u>Comments:</u>							
<u>Action Taken:</u>							

Inspected By: _____

Date: _____

Signature: _____

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Add Appendix B to read:

Appendix B

Advanced Inspection of Personal Protective Equipment Checklist

Name: _____ **Date:** _____

Title: _____ **Fire Station:** _____

ASSIGNED EQUIPMENT							
<u>Item</u>	<u>Manufacturer</u>	<u>Year</u>	<u>New/Reassigned</u>	<u>Make</u>	<u>Model</u>	<u>Serial #</u>	<u>Date of Issue</u>
<u>Coat</u>							
<u>Pants</u>							
<u>Helmet</u>							
<u>Gloves</u>							
<u>Hood</u>							
<u>Footwear</u>							
<u>Eyewear</u>							

CBRN ASSIGNED EQUIPMENT							
<u>Item</u>	<u>Manufacturer</u>	<u>Year</u>	<u>New/Reassigned</u>	<u>Make</u>	<u>Model</u>	<u>Serial #</u>	<u>Date of Issue</u>
<u>Coat</u>							
<u>Pants</u>							
<u>Helmet</u>							
<u>Gloves</u>							
<u>Hood</u>							
<u>Footwear</u>							
<u>Eyewear</u>							

<u>Coat and trouser garments</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
<u>Coat and trouser garment elements shall be inspected for the following:</u>	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>1. Soiling</u>					
<u>2. Contamination</u>					
<u>3. Physical damage such as the following:</u>					
<u>(a) Rips, tears and cuts</u>					
<u>(b) Damaged or missing hardware and closure systems</u>					
<u>(c) Thermal damage (charring, burn holes, or melting discoloration of any layer)</u>					
<u>4. Loss of moisture barrier integrity as indicated by any of the following:</u>					

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<u>(a) Rips, tears, cuts, or abrasions</u>					
<u>(b) Discoloration</u>					
<u>(c) Thermal damage</u>					
<u>5. Evaluation of system fit and coat/trouser overlap</u>					
<u>6. Loss of seam integrity and broken or missing stitches</u>					
<u>7. Loss of material integrity [e.g. ultraviolet (UV) degradation or chemical degradation] as evidenced by discoloration, significant changes in material texture, loss of material strength, loss of liner material.</u>					
<u>8. Loss of wristlet elasticity, stretching runs, cuts, or burn holes.</u>					
<u>9. Reflective trim integrity, attachment to garment, reflectivity, or damage</u>					
<u>10. Label integrity and legibility</u>					
<u>11. Hook and loop functionality</u>					
<u>12. Liner attachment systems</u>					
<u>13. Closure system functionality</u>					
<u>14. Approved accessories only</u>					
<u>15. Correct assembly and size compatibility</u>					

Tests:

<u>1. Light Evaluation of Liners (annually)</u>					
<u>2. Leakage Evaluation (annually)</u>					
<u>3. Water Penetration Barrier Evaluation (Hydrostatic test) required after the third year of service and annually thereafter*</u>					

Comments:

Action Taken:

* Water penetration barrier evaluation and complete liner evaluation can substitute for light penetration test and leakage evaluation for the minimum required annual advanced inspection

Complete Liner Inspection*	"\sqrt" Condition		In Need of (Mark with an "X" or N/A)		
	Pass	Fail	Advanced cleaning	Repair	Replace
Complete Liner Inspection:					
• On the third year of service and annually thereafter					
1. Physical damage to all layers and sides such as the following					
(a) Rips, tears, cuts, and abrasions					
(b) thermal damage (charring, burn holes, melting, discoloration of any layer)					
2. Loss of seam integrity, broken, or missing stitches, and loose missing moisture barrier seam tape.					
3. Material physical integrity: UV or chemical degradation as evidenced by discoloration, significant changes in material texture, loss of material strength, loss of liner material, or shifting of liner material					
4. Delamination as experienced by separation of film from substrate fabric, flaking, or powdering					

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Protective Garments with CBRN Protection	“√” Condition		In Need of (Mark with an “X”) or N/A		
	Pass	Fail	Advanced cleaning	Repair	Replace
Complete Liner Inspection:					
• Minimum of 2 years in service and annually thereafter or earlier depending on the result of the routine inspection.					
1. Physical damage to all layers and sides such as the following					
(a) Rips, tears, cuts, and abrasions					
(b) thermal damage (charring, burn holes, melting, discoloration of any layer)					
2. Loss of seam integrity, broken or missing stitches, and loose missing moisture barrier seam tape.					
3. Material physical integrity: UV or chemical degradation as evidenced by discoloration, significant changes in material texture, loss of material strength, loss of liner material, or shifting of liner material					
4. Delamination as experienced by separation of film from substrate fabric, flaking, or powdering					
5. Moisture Evaluation Barrier Evaluation (Hydrostatic test) – min. 2 years in service and annually thereafter					
6. Loss of interface functionality					
7. Excessive material or component shrinkage or stretching					

Hood	“√” Condition		In Need of (Mark with an “X”) or N/A		
	Pass	Fail	Advanced Cleaning	Repair	Replace
Hood elements shall be inspected for the following:					
1. Soiling					
2. Contamination					
3. Physical damage such as the following:					
(a) Rips, tears, and cuts					
(b) Thermal damage (charring, burn holes, or melting discoloration of any layer)					
4. Shrinkage					
5. Loss of material elasticity or stretching out of shape					
6. Loss of seam integrity or broken or missing stitches					
7. Loss of face-open adjustment					
8. Label integrity and legibility					

Comments:

Action Taken:

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<u>Helmet</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Repair</u>
<u>Helmet elements shall be inspected for the following:</u>					
<u>1. Soiling</u>					
<u>2. Contamination</u>					
<u>3. Physical damage to the shell such as the following:</u>					
<u>(a) Cracks, crazing, dents, and abrasions</u>					
<u>(b) Thermal damage to the shell (bubbling, soft spots, warping, discoloration)</u>					
<u>4. Physical damage to the earflaps such as the following:</u>					
<u>(a) Rips, tears, and cuts</u>					
<u>(b) Thermal damage (charring, burn holes, melting)</u>					
<u>5. Damaged or missing components of the suspension and retention systems</u>					
<u>6. Damaged or missing components of the faceshield/goggle system, including discoloration, crazing and scratches to the faceshield/goggle lens limiting visibility</u>					
<u>7. Damaged or missing reflective trim</u>					
<u>8. Loss of seam integrity and broken or missing stitches</u>					
<u>Comments:</u>					
<u>Action Taken:</u>					

<u>Gloves</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>Glove elements shall be inspected for the following:</u>					
<u>1. Soiling</u>					
<u>2. Contamination</u>					
<u>3. Physical damage such as the following:</u>					
<u>(a) Rips, tears, and cuts</u>					
<u>(b) Thermal damage (charring, burn holes, or melting discoloration of any layer)</u>					
<u>(c) Inverted liner</u>					
<u>(d) Loss of seam integrity or broken or missing stitches.</u>					
<u>5. Shrinkage</u>					
<u>6. Loss of elasticity</u>					
<u>7. Approved accessories only</u>					
<u>8. Label integrity and legibility</u>					
<u>Comments:</u>					

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Action Taken:

<u>Footwear</u>	<u>"√" Condition</u>		<u>In Need of (Mark with an "X") or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>Footwear elements shall be inspected for the following:</u>					
<u>1. Soiling</u>					
<u>2. Contamination</u>					
<u>3. Physical damage such as the following:</u>					
<u>(a) Cuts, tears, punctures, cracking, or splitting</u>					
<u>(b) Thermal damage (charring, burn holes, or melting discoloration of any layer)</u>					
<u>(c) Exposed or deformed protective toe, protective mid-sole, or shank</u>					
<u>4. Loss of water resistance</u>					
<u>5. Closure system component damage and functionality</u>					
<u>6. Excessive tread wear</u>					
<u>7. Condition of lining such as :</u>					
<u>(a) Tears</u>					
<u>(b) Excessive wear</u>					
<u>(c) Separation from outer layer</u>					
<u>8. Heel counter failure</u>					
<u>9. Approved accessories only</u>					
<u>10. Label integrity and legibility</u>					
<u>Comments:</u>					
<u>Action taken:</u>					

<u>Drag Rescue Device (DRD)</u>	<u>"√" Condition</u>		<u>In Need of (Mark with an "X") or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>DRD</u>					
<u>1. Installation in garment</u>					
<u>2. Soiling</u>					
<u>3. Contamination</u>					
<u>4. Physical damage such as the following</u>					
<u>(d) Cuts, tears, punctures, cracking, or splitting</u>					
<u>(e) Thermal damage (charring, burn holes, melting, discoloration)</u>					
<u>(f) Loss of seam integrity</u>					
<u>5. Label integrity and legibility</u>					
<u>Comments:</u>					
<u>Action taken:</u>					

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<u>Interface Components</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>Interface components shall be inspected for the following:</u>					
<u>1. Soiling</u>					
<u>2. Contamination</u>					
<u>3. Physical damage</u>					
<u>4. Loss or reduction of properties that allow component to continue as effective interface (e.g. loss of shape or ability to remain attached to the respective element(s) where attachment is required)</u>					
<u>5. Loss of seam integrity and broken or missing stitches</u>					
<u>Comments:</u>					
<u>Action taken:</u>					

Additional Advanced Inspection Criteria for Proximity Fire Fighting Protective Ensembles and Ensemble Elements

<u>Proximity Fire Fighting Coat and trouser</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>Proximity fire fighting coat and trouser garment elements shall be inspected for the following:</u>					
<u>1. Loss of reflectivity</u>					
<u>2. Loss of reflectivity coating(s)</u>					
<u>3. Delamination as evidenced by separation or peeling of the outer shell</u>					
<u>Comments:</u>					
<u>Action Taken:</u>					

<u>Proximity Fire Fighting Helmet Element Overcover</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u> <u>Advanced Insp.</u>	<u>Repair</u>	<u>Replace</u>
<u>Proximity fire fighting helmet element overcover shall be inspected for the following:</u>					
<u>1. Loss of radiant reflectivity</u>					
<u>2. Loss of radiant reflectivity coating(s)</u>					
<u>3. Damage or missing reflective trim, if applicable</u>					
<u>4. Helmet attachment system for damage and functionality.</u>					
<u>5. Delamination as evidenced by separation or peeling of the outer shell</u>					
<u>Comments:</u>					
<u>Action taken:</u>					

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<u>Proximity Fire Fighting Shrouds</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>Proximity fire fighting shrouds shall be inspected for the following:</u>					
<u>1. Loss of radiant reflectivity</u>					
<u>2. Loss of radiant reflectivity coating(s)</u>					
<u>3. Delamination as evidenced by separation or peeling of the outer shell</u>					
<u>4. If applicable, damage and functionality of the helmet attachment system</u>					
<u>5. Distortion of face opening resulting in gaps around the faceshield</u>					
<u>6. Delamination as evidence by separation or peeling of the outer shell</u>					
<u>Comments:</u>					
<u>Action taken:</u>					

<u>Proximity fire fighting helmets</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>Proximity fire fighting helmet elements shall be inspected for the following:</u>					
<u>1. Loss of faceshield radiant reflectivity</u>					
<u>2. If applicable, loss of shell radiant reflectivity</u>					
<u>Comments:</u>					
<u>Action taken:</u>					

<u>Proximity fire fighting gloves</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning</u>	<u>Repair</u>	<u>Replace</u>
<u>Proximity fire fighting glove elements shall be inspected for the following:</u>					
<u>1. Loss of radiant reflectivity</u>					
<u>2. Loss of radiant reflective coating(s)</u>					
<u>3. Delamination as evidenced by separation or peeling of the outer shell</u>					
<u>Comments:</u>					
<u>Action taken:</u>					

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<u>Proximity Fire Fighting Footwear</u>	<u>“√” Condition</u>		<u>In Need of (Mark with an “X”) or N/A</u>		
<u>Proximity fire fighting footwear elements shall be inspected for the following:</u>	<u>Pass</u>	<u>Fail</u>	<u>Advanced Cleaning REPLACE</u>	<u>Repair</u>	<u>Replace</u>
<u>1. Loss of radiant reflectivity</u>					
<u>2. Loss of radiant reflective coating(s)</u>					
<u>Comments:</u>					
<u>Action Taken:</u>					

Inspected By: _____

Date: _____

Signature: _____

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Add Appendix C to read:

Appendix C

Routine Cleaning Process [NFPA 1851, Section 7.2]

1. If possible, cleaning shall be initiated at the emergency site.
2. Ensembles and element layers shall be isolated whenever possible.
3. Any debris shall be brushed off.
4. Other debris shall be gently rinsed off with water. Heavy scrubbing or spraying with high-velocity water jets such as a power washer shall not be used.
5. Where necessary, a soft bristle brush shall be used to gently scrub the ensemble or element and shall be rinsed off again.

Exception: Outer shell and other radiant components of proximity fire fighting protective ensembles and ensemble elements shall not be cleaned with a brush or any abrasive cleaning devices.

6. Where necessary, elements for routine cleaning shall be cleaned in a utility sink designated for personal protective equipment (PPE) cleaning and decontamination using the following procedures:
 - a. Heavily soiled or spotted areas shall be pretreated. Chlorine bleach, chlorinated solvents, active-ingredient cleaning agents, or solvents shall not be used without the ensemble or element manufacturer's approval.
 - b. Water temperature shall not exceed 40 °C (105 °F).
 - c. Mild detergent with a pH range of not less than 6.0 pH and not greater 10.5 pH as indicated on the product SDS or original product container shall be used.
 - d. Protective gloves and eye/face splash shall be worn by the employee performing the cleaning.
 - e. Elements shall be gently scrubbed using a soft bristle brush.
 - f. Elements shall be thoroughly rinsed.

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- g. Elements shall be reinspected and where necessary, shall be rewashed or submitted for advanced cleaning procedures. The manufacturer shall be consulted if stronger cleaning agents are required.
- h. If air drying, elements shall be dried in an area with good ventilation and not be dried in direct sunlight.
- i. If using machine drying, follow the following procedures:
 - 1. The recommended capacity of the machine shall not be exceeded.
 - 2. All closures, including pocket closures, hooks and loops, snaps, zippers, and hooks, and dees shall be fastened.
 - 3. A “no heat” or “air dry” option shall be used, if available.
 - 4. In the absence of a “no heat” or “air dry” option, the basket temperature shall not exceed 40 °C (105 °F).
 - 5. The use of heat cycle shall be discontinued prior to the removal of all moisture from the ensemble elements.
 - 6. The remainder of the drying process shall be accomplished by a “no heat” machine or removal of the ensemble elements

Helmets

- 1. If it is necessary to completely immerse the helmet, the impact cap shall be separated from the helmet shell. Each element component shall be washed and dried separately before reassembly.
- 2. Solvents shall not be used to clean or decontaminate helmet or helmet components. The manufacturer shall be consulted if stronger cleaning agents are required.
- 3. Helmets shall not be machine dried using equipment that produces mechanical action from tumbling or agitation.

Gloves

- Glove elements shall not be machine dried using equipment that produces mechanical action from tumbling or agitation.

Footwear

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Footwear shall not be machine dried using equipment that produces mechanical action from tumbling or agitation.

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Add Appendix D to read:

Appendix D

Advanced Cleaning of Fire Fighting Protective Ensembles [NFPA

Garment Elements

1. If the coat element has a removable drag rescue device (DRD), the DRD shall be removed prior to laundering the coat being laundered. If the DRD requires cleaning, it shall be washed and dried separately.
2. Where shells and liners of protective garments are separable, those items shall be cleaned and decontaminated only with like items. Hoods are permitted to be machine washed and dried with garments.
3. Separable line systems shall be turned inside out so the moisture barrier is on the inside for both machine washing and machine drying

Helmets

1. Detachable items shall be removed from the helmet and shall be washed and dried separately.
2. Helmets shall be washed manually. [Helmets shall not be machined cleaned or dried using equipment that produces mechanical action by tumbling or agitation.- original language allows the use of a dishwasher. I don't believe that was the intent]

Gloves

Gloves shall be washed manually. [Gloves shall not be machined cleaned or dried using equipment that produces mechanical action by tumbling or agitation.- original language allows the use of a dishwasher.]

Footwear

Footwear shall be washed manually.

Hood Elements

Hoods shall be permitted to be washed and dried with garment elements.

Proximity Fire Fighting Ensemble and Ensemble Elements

1. Outer shell and other radiant reflective components of proximity fire fighting protective ensembles and ensemble elements shall not be cleaned with a brush or other abrasive devices.

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2. Outer shell and other radiant reflective components of proximity fire fighting protective ensembles and ensemble elements shall not be machine washed.

3. Outer shell and other radiant reflective components of proximity fire fighting ensembles and ensemble elements shall not be machine dried.

Machine Washing Procedures

1. The machine shall not be overloaded.

2. Heavily soiled or spotted areas shall be pretreated. Chlorine bleach, chlorinated solvents, active-ingredient cleaning agents, or solvents shall not be used without the ensemble or ensemble element manufacturer's approval.

3. All closures, including pocket closure, hook and loops, snaps, zippers, and hooks and dees shall be fastened.

4. Water temperature shall not exceed 40°C (105F).

5. A mild detergent with a pH range not less than 6.0 pH and not greater than 10.5 pH as indicated on the product SDS or original product container shall be used.

6. Washing machines with the capacity of drum RPM adjustments shall be adjusted so the G forces does not exceed 100 Gs for all elements.

7. Machine manufacturer's instructions shall be followed for proper setting or program selection for the specific element being washed.

8. The element shall be inspected and rewashed if necessary.

9. Where the machine is also used to wash items other than protective ensemble elements, it shall be rinsed out by running the machine without laundry load through a complete cycle with a detergent and filled to the maximum level with water at a temperature of 49°C to 52°C (120 °F to 125 °C).

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Drying Procedures

Air Drying

Elements shall be dried in an area with good ventilation and not be dried in direct sunlight.

Machine drying

1. The recommended capacity of the machine shall not be exceeded.
2. All closures, including pocket closures, hooks and loops, snaps, zippers, and hooks, and dees shall be fastened.
3. A “no heat” or “air dry” option shall be used, if available.
4. In the absence of a “no heat” or “air dry” option, the basket temperature shall not exceed 40 °C (105 °F).
5. The use of heat cycle shall be discontinued prior to the removal of all moisture from the ensemble elements.
6. The remainder of the drying process shall be accomplished by a “no heat” machine or removal of the ensemble elements.