

**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.

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

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

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

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

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

§3406. ~~Body Protection.~~ Hand and Wrist Protection

§3407. ~~Hand and Wrist Protection.~~ Foot Protection

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

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

§3409. Respiratory Protection.

§3410. Wildland Fire Fighting Requirements.

Red text reflect amendments made during the meeting

Green text reflect amendments made after considering comments made during the meeting

Blue texts are notes and relevant information for discussion

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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. [\[The employer's written plan is required to be amended to reflect new §3402.3\]](#)

(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.~~

~~(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.~~

~~(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.~~

~~(D) Alarm devices shall remain operable after being submerged in sea water for at least one hour at a depth of two meters.~~

~~(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.~~

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~~(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 the proposal is finalized, the terminology that are not used in Article 10.1 will be deleted]

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.

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 component integrated within the protective coat element to aid in the rescue of an incapacitated fire fighter.

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.~~ [Removed this definition, the government code below does not define structural fire fighting]

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.

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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.

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.

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Primary Eye Protection. A protective device specifically intended to shield the eyes from certain hazards while permitting vision.

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.

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.

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(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.

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 due to a fire or emergency situation involving building(s), enclosed structure(s), vehicle(s), marine vessel(s), or like properties.

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.

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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.

Exception: Protective ensemble or ensemble elements meeting the most current NFPA 1971 edition will be deemed as meeting the standard.

(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.

Exception: Protective ensemble or ensemble elements meeting the most current NFPA 1971 edition will be deemed as meeting the standard.

(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.

Exception: Protective ensemble or ensemble elements meeting the most current NFPA 1971 edition will be deemed as meeting the standard.

(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

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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.

Exception: Protective ensemble or ensemble elements meeting the most current NFPA 1971 edition will be deemed as meeting the standard.

(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.

Exception: Protective ensemble or ensemble elements meeting the most current NFPA 1971 edition will be deemed as meeting the standard.

(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 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.

Exception: Protective ensemble or ensemble elements meeting the most current NFPA 1971 edition will be deemed as meeting the standard.

(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 1994, Standard on Protective Ensembles for First Responders to CBRN Terrorism Incident, (2012) 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.

Exception: CBRN ensemble or ensemble elements meeting the most current NFPA 1994 edition will be deemed as meeting the standard.

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(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.

Exception: Protective ensemble or ensemble elements meeting the most current NFPA 1982 edition will be deemed as meeting the standard.

(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.

Exception: Protective ensemble or ensemble elements meeting the most current NFPA 1981 edition will be deemed as meeting the standard.

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

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Add a new section to read: [\[Will not be covered on the January 20, 2016 meeting\]](#)

§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 is 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 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:

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

(a) NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (2014), shall be incorporated by reference except for the following :

(1) In addition to the recordkeeping requirements of Section 4.3 of Chapter 4, Program of the NFPA 1851 (2014), the employer shall maintain records on its structural and proximity fire fighting protective ensemble and ensemble elements for three years from the date of retirement.

(2) Sections 10.1.2 and 10.1.3 of Chapter 10, Retirement Disposition and Special Incident Procedures of NFPA 1851 (2014).

Note to Subsection (a): Annex A, Annex B, and Formal Interpretations of NFPA 1851 (2014) are informational documents.

(b) Retirement.

(1) Structural fire fighting ensembles and ensemble elements shall be retired no more than 10 years from the date the ensembles were manufactured.

Exception: Unused structural fire fighting garments greater than 10 years old that were properly stored in accordance to Chapter 9 of NFPA 1851 (2014). Unused protective garments shall be subjected to an advanced inspection prior to use and shall be retired after the first failed annual advanced inspection.

(2) Proximity fire fighting ensembles and ensemble elements shall be retired no more than 10 years from the date the ensembles were manufactured.

Exception: Unused structural fire fighting garments greater than 10 years old that were properly stored in accordance to Chapter 9 of NFPA 1851 (2014). Unused protective garments shall be subjected to an advanced inspection prior to use and shall be retired after the first failed annual advanced inspection.

(A) Radiant reflective outer shell shall be replaced at a maximum of 5 years.

(c) Effective Dates

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(1) Chapter 5 (Selection) of NFPA 1851(2014) shall be effective xx-xx-xxxx. [6 months from OAL effective date]

(2) Chapter 6.1 and 6.2 (General and Routine Inspection) of NFPA 1851(2014) shall be effective xx-xx-xxxx. [upon OAL effective date]

(A) Chapter 6.3 (Advanced Inspection) and Chapter 12 (Test Procedures) of NFPA 1851 (2014) shall be effective xx-xx-xxxx. [1 year after OAL effective date]

(3) Chapter 7.1.(General) and 7.2 (Routine Cleaning) of NFPA 1851(2014) shall be effective xx-xx-xxxx. [upon OAL effective date]

(A) Chapter 7.3 (Advanced Cleaning) of NFPA 1851 (2014) shall be effective xx-xxx-xxxx [1 year after OAL effective date]

(4) Chapter 8 (Repair) of NFPA 1851 (2014) shall be effective xx-xx-xxxx. [upon OAL effective date]

(5) Chapter 9 (Storage) of NFPA 1851 (2014) shall be effective xx-xx-xxxx. [6 months from OAL effective date]

(6) Chapter 10 (Retirement) of NFPA 1851 (2014) and Subsection (b) of §3402.3 shall be effective xx-xx-xxxx. [3 years from OAL effective date]

(7) Chapter 11 (Verification) of NFPA 1851 (2014) shall be effective xx-xx-xxx. [upon OAL effective date]

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. [The proposal §3402.3 (c) has a 3 year phase in for retirement. In the meantime, in service PPE has to meet the existing standard]

(1) Labeling. Helmets ordered or purchased after January 1, 1988 and prior to July 1, 2017, 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:

- (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

(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.
- (B) Visibility and reflectivity shall be 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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(c) Eye and Face Protection

(1) Employees exposed to eye injury hazards shall be protected in accordance with the provisions of Section 3382. [Existing cross reference will be deleted]

(1) Eye protection and/or face protection shall be provided to each firefighter to protect from eye injuries such as punctures, abrasions, contusions, or burns as a result of contact with flying particles, hazardous substances, projections or injurious light rays which are inherent in the work or environment.

(2) 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: [Relocated from Section 3404 (a)(2)]

(A) Face shield attached to the helmet;

(B) Heat and flame resistant hood;

(C) High collar and throat strap.

[Text from 3404 (b) to be deleted and replaced by 3403(c)(3)]

(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)]

(3) Eye and face protection purchased after July 1, 2017 shall be meet the American National Standard, Practice for Occupational and Educational Eye and Face Protection, Z87.1-2010 which is hereby incorporated by reference. In addition, it shall bear the mark "Z87+." [New text to replace 3404 (b)]

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

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

(6) 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.

(7) 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] Ear and Neck Protection and Protective Hood Interface [Relocated from Section 3405].

~~(a) General.~~

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

~~(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:~~ [Moved to Section 3403(c)(3)]

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

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

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

(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: [Relocated to Section 3405]

(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) 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~~

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~~withstanding heat in accordance with the provisions of Section 3403(b).~~ [\[Addressed in Section 3403 \(c\)\(2\)\]](#)

(e) [\(b\)](#) Hood and Coat Collars. Such devices shall be constructed and tested in accordance with the provisions of Section 34065, Body Protection.

(c) Non-fabric materials shall meet heat and flame resistance requirements of Section 3403, Head Protection. [\[Relocated from 3405\(c\)\]](#)

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 Section 3404] ~~Body Protection.~~ [Relocated from Section 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: [Relocated to 3404]~~

~~(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.~~

(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 Section 3406(a) with modifications]

~~(b) Fabric specified in this section shall be constructed and tested in accordance with the provisions of Section 3406, Body Protection. [Relocated to Section 3404(b)]~~

(b) Turnout Clothing purchased before July 1, 2017. 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: [Existing text from §3406 (b)]

(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

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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 (260o C) for a period of 5 minutes.

~~(c) Non-fabric materials shall meet heat and flame resistance requirements of Section 3403, Head Protection.~~ [Relocated to Section 3404(c)]

(c) Protective Clothing, other than turnout clothing purchased prior to July 1, 2017. Protective clothing, other than turnout clothing, shall meet the following minimum performance requirements: [Existing text from Section 3406 (c)]

(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

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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 3405(c) or [Section 3402.1](#) shall be worn on all structural fires. Body protection provided for other than structural fires shall be appropriate for the potential hazards. [Existing text from Section 3406 (d)]

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).~~ [\[Relocated Section 3405 with modifications\]](#)

(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. [\[Relocated from Section 3407 with modification to add proximity\]](#)

~~(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:~~ [\[Relocated to Section 3405 \(b\) with modification to apply to existing PPE not newly purchased PPE\]](#)

~~(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).~~

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~~(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 (260o C) for a period of 5 minutes.~~

(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 from Section 3407 (b)]

~~(c) Protective Clothing. Protective clothing, other than turnout clothing, shall meet the following minimum performance requirements: [Relocated to Section 3405 (c) to apply to existing PPE]~~

~~(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.~~

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(c) For gloves purchased before July 1, 2017, 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 111° F (44 °C) when subjected to the tests specified in subparagraphs 1, 2 and 3: [Relocated from 3407 (c). Should there be a purchase before date or should the gloves in service be required to meet NFPA 1971(2013) immediately? How often do you replace gloves?]

(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 932° F (500 °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) Turnout coats in combination with turnout trousers, or turnout coats and protective clothing meeting the requirements of Section 3406(e) shall be worn on all structural fires. Body protection provided for other than structural fires shall be appropriate for the potential hazards. [Relocated to Section 3405 (d) to apply to existing PPE]~~

(d) For protective gloves purchased before July 1, 2017, the 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 3406(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.

(3) Preconditioning:

Dry--Gloves and halyards shall be preconditioned at 25° 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.

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(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) For protective gloves purchase before July 1, 2017, the fabric specified in this section shall be constructed and tested in accordance with the provisions of Section 3405, Body Protection.

(g) 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:

(1) Lot Number;

(2) Reference to specified test; and

(3) Date of successful test.

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 proximity]~~

(a) Foot protection shall be provided to and worn by fire fighters while engaged in structural and proximity fire fighting activity. ~~[Relocated from Section 3408(a) with the addition of proximity and removed the reference to Section 3385]~~

~~(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) with purchase date criteria]~~

(b) The use of foot protection shall be coordinated with the wearing of the protective clothing system to ensure full body protection. ~~[Relocated from Section 3408(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 (44° C) when subjected to the tests specified in subparagraphs 1, 2 and 3:~~ ~~[Relocated to Section 3406 (c) to apply to PPE purchased before July 1, 2017]~~

~~(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 932° F (500° 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.~~

(c) Turnout Boots. Fire fighter turnout boots shall meet the requirements of MIL-B-2885D (5-23-73) and amendment dated 12-31-75. ~~[What should the consensus standard be for current in-service footwear? See Section 3411 (d) for private fire brigades-option to meet Chapter 6.10 and 7.10 of NFPA 1971 (2013)]~~

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~~(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). [Relocated to Section 3406 to apply to PPE purchased prior to July 1, 2017]~~

~~(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.~~

~~(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.~~

~~(d) In addition to the requirements of Section 3407(a), protective footwear other than turnout boots shall also provide: [What should the consensus standard be for existing footwear? MIL-B2885D is no longer available. Reports of soles melting. See Section 3411 (d) for private fire brigades-option to meet Chapter 6.10 and 7.10 of NFPA 1971 (2013)]~~

~~(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.~~

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(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.

~~(e) Protection against burns or injury to the wrist shall be provided by one or more of the following means or other equivalent methods: [Relocated to Section 3406 with purchase criteria]~~

~~(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.~~

(e) Toe protection shall be optional for those fire fighters who are regularly engaged in structural and wildlands fire fighting activities. [Relocated from Section 3408 (e)]

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

~~(g) 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 to Section 3406 (g)]~~

~~(1) Lot Number;~~

~~(2) Reference to specified test; and~~

~~(3) Date of successful test.~~

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

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Add a new §3407.1 to read:

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

Reserved

or

NFPA 1994, Standard on Protective Ensembles for First Responders to CBRN Terrorism Incident, (2012 or 2016) Edition shall be incorporated in its entirety.

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. [Relocated to Section 3407] Personal Alert Safety Systems (PASS) [relocated from Section 3401]

1991 (3rd Edition)

- Complete revision of the work in 1991.

1998 (4th Edition)

- Complete revision of the 3rd edition.

2002

- NFPA Standards Council established a new committee, the Technical Committee on Electronic Structure.

2007 (5th Edition)

- New water immersion requirements and testing where PASS is exposed to 350°F for 15 minutes and then to water submersion in 1.5 m (4.9 ft) also for 15 minutes for each of six cycles. PASS is then examined to determine no water ingress, that all PASS signals function properly, and that electronic data logging functions operate properly.
- PASS is then re-immersed in the test water for an additional 5 minutes with the power source compartment(s) open; following those 5 minutes, the PASS is removed from water and wiped dry, and the electronics compartment is opened and examined to determine no water ingress.
- Revised high-temperature resistance requirements and added new high-temperature functionality requirements and testing procedures where PASS is exposed to 500°F for 5 minutes while mounted in a circulating hot air oven.
- The PASS alarm signal must function at or above the required 95 dBA sound level for the required duration of the signal, electronic data logging functions must operate properly, and no part of the PASS can show evidence of melting, dripping, or igniting.
- New tumble–vibration requirements and testing in which PASS is “tumbled” in a rotating drum for 3 hours. The PASS alarm signal must function at the required 95 dBA sound level, and electronic data logging functions must operate properly.
- New requirements to prevent muffling of the alarm signal where PASS is mounted on a test subject and evaluated in five positions (face down with arms extended, supine left, supine

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right, fetal right with knees drawn to chest, fetal left with knees drawn to chest), and the alarm signal must function at or above the required 95 dBA sound level in each of the positions.

2013 Edition (6th Edition)

- Complete revision of the 5th edition
- RF PASS
- Test for stand alone , removable and non-integrated PASS have been updated
- Alarm signal has been revised (Chapter 6)
- Several new test methods have been added, including radio system tests for RF PASS, loss-of-signal alarms, and an RF interference test for optional RF PASS.

This section applies to PASS purchased prior to July 1, 2017. [Should we adopt a minimum edition or a retirement phase in of PASS purchased prior to July 1, 2017?]

~~(a) Foot protection shall be provided in accordance with Section 3385 for fire fighters while engaged in structural fire fighting activity.~~ [Relocated to Section 3407 with reference to proximity fire fighting]

(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. [New text]

~~(b) The use of foot protection shall be coordinated with the wearing of the protective clothing system to ensure full body protection.~~ [Relocated to Section 3407 (b)]

(b) Personal Alarms. [Relocated from Section 3401 (c)(1)]

(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:

(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.

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(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.

(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 -10° C to 80° C and for a period of two minutes at 140° C.

(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.

(D) Alarm devices shall remain operable after being submerged in sea water for at least one hour at a depth of two meters.

(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.

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~~(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.~~

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.

[DISCUSS THE EDITION TO ADOPT]

NFPA 1981, Standard on Self-Contained Breathing Apparatus (SCBA) for Emergency Services

1981 Edition

- Minimum rated service life for 30 minutes
- Replaced 19B, Standard on Respiratory Equipment for Fire Fighters
- Complete revision to state performance requirements and appropriate testing procedures designed to simulate various environmental conditions to which fire fighters' SCBA can be exposed during use and storage. These requirements are in addition to the basic NIOSH/MSHA certification requirements, and now NFPA1981 applies to open-circuit SCBA.

1992 Edition

- Third party certification and quality control
- New total heat and flame test for the entire apparatus
- Test methods covering facepiece lens abrasion and communications

1997 Edition

- A new requirement for redundant end-of service-time indicators (EOSTI) was added to provide a better level of safety in case of failure of one EOSTI indicator

2002 Edition

- New requirements for heads-up display (HUD) that provide visual information and warning to SCBA wearers of the status of SCBA's air supply and, where the HUD is powered by a power source, the power status of the HUD.
- Single universal air connection (UAC) located in specific position on all new SCBA certified and existing could be upgraded

RIC UAC (Rapid Intervention Company) permits the breathing air of cylinder of an SCBA user to be replenished from an independent rescue breathing air supply source when the SCBA user is trapped or unable to be removed from a hazardous atmosphere.

2007 Edition

- All emergency services SCBA to also be NIOSH certified as CBRN SCBA
- New breathing air cylinder retention requirements within the mounted position

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

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

- Mechanical voice diaphragm performance requirement increased to 80 percent minimum score at 1.5 m (4.9 ft) distance.
- New voice communications system with at least an 85 percent score at 3 m (10 ft) distance.
- New independent pressure gauge that would not be affected by failure of the heads-up display (HUD).
- New water immersion requirements for electronic devices that are part of the SCBA that must function properly and remain watertight after six exposures to 177°C (350°F) for 15 minutes and water submersion to 1.5 m (4.9 ft).
- New low power capacity requirements for electronic devices to assure that such devices will continue to function properly for at least 2 hours following activation of the low power source sign.

2013 Edition

- Emergency Breathing Safety Systems (EBSS), in response to correspondence that the Technical Committee on Respiratory Protection Equipment received from the National Institute for Occupational Safety and Health (NIOSH) that indicated NIOSH's intention to modify its existing policy on buddy breathers.
- New definitions related to speech intelligibility, transmission (STI), sound pressure (SPL), mouth reference point (MRP), and microphone measurement point (MMP).
- Modified the performance requirements for the nonelectronic communications performance test and the supplementary voice communications system performance test. Several additional new tests have been added, including an emergency breathing safety system cold temperature performance test, a lens radiant heat test, and a lens convective heat and flame resistance test.]

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

[Which edition should be adopted? Which editions of SCBAs need to be retired?]

**STANDARDS PRESENTATION
TO
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PROPOSED STATE STANDARD,
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(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) 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. [Same as NFPA 1981 (1981)]

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

~~(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~~

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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. [Redundant EOSTI is a 1997 requirement]

(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 add a 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