

NFPA & OSHA Eye Protection Standards: Are You Compliant?

A Fire Service Educational Announcement from Eye Safety Systems, Inc.

The most recent *NFPA Journal Report of U.S. Firefighter Injuries* documented 3,830 Eye Injuries in 1997. Many of these injuries could have been prevented by the use of proper eye protection. NFPA and OSHA have established standards for eye protection in order to minimize the number of occupational eye injuries each year. Compliance with these standards is crucial because it affects the health, safety, and liability exposure of every Fire Department.

As a manufacturer of eye protection systems for firefighters, ESS is continually called upon to explain and interpret the NFPA and OSHA standards. In an effort to improve the collective understanding of these standards, we have compiled this collection of references from NFPA 1971-2000, NFPA 1500, Federal OSHA Standards 29 CFR, and ANSI Z87.1. We encourage safety committee members to use this page as a reference in their procedures manual.



CURRENT EYE PROTECTION STANDARDS

American National Standards Institute, *Practice for Occupational and Educational Eye and Face Protection Standard Z87.1-1979 (ANSI Z87.1)*

Both OSHA and NFPA 1500 standards reference ANSI Z87.1 as the benchmark standard for occupational eye and face protection. Sections 9&10 include the specific standards for evaluating factors such as impact resistance, lens thickness, projectile penetration, and optical quality. Departments should only use protective eyewear marked "Z87"; this indicates that the product has met ANSI Z87.1 standards. When NFPA 1500 standards reference ANSI Z87.1, they specifically require **primary** eye protection. ANSI Z87.1 is very clear in its description of primary versus secondary eye protection:

Definitions

Primary Protector – A device which may be worn alone or in conjunction with a secondary protector.

Secondary Protector – A device which shall be worn only in conjunction with a primary protector.

Faceshield - A protective device commonly intended to shield the wearer's face, or portions thereof, in addition to the eyes, from certain hazards. Faceshields are secondary protectors and shall be used only with primary protectors.

Goggle - A protective device intended to fit the face immediately surrounding the eyes to shield the eyes from a variety of hazards.

Section 10.1

...While <goggles> are primary protectors and may be used alone, they may also be used in conjunction with the other protectors.

NFPA 1500 *Fire Department Occupational Safety and Health Program, 1997 edition*

NFPA 1500 is the U.S. Fire Service's official guide for procedures and proper equipment use. Section 5-10 *Eye and Face Protection* sends a clear message that appropriate primary eye protection must be provided and worn:

- 5-10.1 Primary face and eye protection appropriate for a given specific hazard shall be provided and used by members exposed to that specific hazard. Such primary face and eye protection shall meet the requirements of ANSI Z87.1.
- 5-10.2 The full facepiece of SCBA shall constitute face and eye protection when worn. SCBA that has a facepiece-mounted regulator that, when disconnected, provides a direct path for flying objects to strike the face or eyes, shall have the regulator attached in order to be considered eye and face protection.
- 5-10.3 When operating in the hazardous area at an emergency scene without the full facepiece of respiratory protection being worn, members shall deploy the goggles for eye protection.

NFPA 1971 *Standard on Protective Ensemble for Structural Fire Fighting, 2000 edition (NFPA 1971-2000)*

This is the U.S. Fire Service's official guide to minimum standards for protective ensemble elements. According to NFPA 1971-2000, eye protection is a **component** of the helmet **element**, and either a goggle or a faceshield must be attached to each structural helmet at all times.

- 4-2.2 **Protective Helmet Design Requirements.** Helmets for structural fire fighting shall consist of at least the following assembled components:
 - (6) Either a faceshield, or goggles, or both
- 1-3.37 **Definition: Faceshield.** The helmet component intended to help protect a portion of the wearer's face in addition to the eyes, not intended as primary eye protection.
- 1-3.50 **Definition: Goggles.** The helmet component intended to help protect the wearer's eyes and a portion of the wearer's face, not intended as primary eye protection.

Primary eye protection is required by NFPA 1500, so these definitions beg the question: "What products does NFPA 1971-2000 intend as primary eye protection?" This standard does not explicitly answer that question, so one has to logically assume that the same ANSI Z.87.1 primary eye protection standards referenced by NFPA 1500 are applicable. A review of ANSI Z.87.1 makes it clear that a faceshield can never be primary eye protection, while ANSI Z87.1-compliant goggles are primary eye protection for "appropriate hazards" such as projectiles and splashes.

NFPA 1971-2000, Section 5-2, Protective Helmets Performance Requirements, details the performance requirements that an eye protection system must meet to be compliant with this standard. These standards go beyond ANSI Z87.1, in an effort to address the unique performance needs required of protective eyewear that will be permanently attached a structural fire helmet. For a helmet to be NFPA 1971-2000 compliant, it must have a faceshield or goggle attached that can satisfy these performance requirements. Eye protection that complies is marked "NFPA 1971-2000."

Federal Occupational Safety and Health Administration Regulations - OSHA Standards – 29 CFR, Eye and Face Protection – 1910.133

The OSHA standards are very consistent with NFPA 1500, in stating that appropriate ANSI Z87.1 primary eye protection must be provided to employees.

- Sec. (a) (1) The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic fluids, chemical gases or vapors, or potentially injurious light radiation.
- Sec. (a) (2) The employer shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects.
- Sec. (a) (3) The employer shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.
- Sec. (b) (1) Protective eye and face devices purchased after July 5, 1994 shall comply with ANSI Z87.1-1989, "American National Standard Practice for Occupational and Educational Eye and Face Protection," which is incorporated by reference as specified in Sec. 1910.6.

SO HOW CAN MY DEPARTMENT SELECT EYE PROTECTION THAT WILL COMPLY WITH ALL OSHA AND NFPA STANDARDS?

There are exactly two equipment systems that departments can use to comply with all of these eye protection standards. By issuing one of these systems, and instituting policies for proper use, departments can effectively minimize their exposure to potentially career-ending injuries, lost time, insurance claims, and personal injury liability:

- 1) Goggles that meet ANSI Z87.1 and NFPA 1971-2000 standards
- 2) Faceshields that meet NFPA 1971-2000, **AND** goggles meeting ANSI Z87.1

You can download this article at www.essgoggles.com.

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