DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Parts 1910, 1915, 1917, 1918, and 1926

[Docket No. OSHA-2014-0024]

RIN 1218-AC87

Updating OSHA Standards Based on National Consensus Standards; Eye and Face Protection

AGENCY: Occupational Safety and Health Administration (OSHA), Department of Labor.

ACTION: Notice of Proposed Rulemaking

SUMMARY:

The Occupational Safety and Health Administration (“OSHA” or “Agency”) is issuing this notice of proposed rulemaking to update its general industry, shipyard employment, marine terminals, longshoring, and construction eye and face protection standards by incorporating by reference the three most recent versions of the American National Standards Institute (“ANSI” or “national consensus standard”) Occupational and Educational Eye and Face Protection standard. In addition, OSHA proposes to change language in the construction eye and face protection standard to make it consistent with both the general industry and maritime standards.

DATES:
Submit comments on this notice of proposed rule (including comments on the information-collection (paperwork) determination described under the section titled Procedural Determinations, hearing requests, and other information) by [INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]. All submissions must bear a postmark or provide other evidence of the submission date (the following section titled “ADDRESSES” describes the available methods of making submissions).

ADDRESSES:

Submit comments, hearing requests, and other information as follows:

- **Electronic.** Submit comments electronically to http://www.regulations.gov, which is the Federal eRulemaking Portal. Follow the instructions online for submitting comments.

- **Facsimile.** OSHA allows facsimile transmission of comments and hearing requests that are 10 pages or fewer in length (including attachments). Send these documents to the OSHA Docket Office at (202) 693-1648; OSHA does not require hard copies of these documents. Instead of transmitting facsimile copies of attachments that supplement these documents (e.g., studies, journal articles), commenters must submit these attachments to the OSHA Docket Office, Technical Data Center (TDC), Room N-2625, OSHA, U.S. Department of Labor, 200 Constitution Ave., NW, Washington, DC 20210. These attachments must clearly identify the sender’s name, date, subject, and docket number (i.e., OSHA-2014-0024 so that the Agency can attach them to the appropriate document.
• Regular mail, express delivery, hand delivery, and messenger (courier) service. Submit comments and any additional material (e.g., studies, journal articles) to the OSHA Docket Office, Docket No. OSHA-2013-0024 or RIN 1218-AC8708 Technical Data Center, Room N-2625, OSHA, U.S. Department of Labor, 200 Constitution Ave., NW, Washington, DC 20210; telephone: (202) 693-2350. (OSHA’s TTY number is (877) 889-5627)). Note that security procedures may result in significant delays in receiving comments and other written materials by regular mail. Contact the OSHA Docket Office for information about security procedures for delivery of materials by express delivery, hand delivery, and messenger service. The hours of operation for the OSHA Docket Office are 8:15 a.m. to 4:45 p.m., e.t.

• Instructions. All submissions must include the Agency name and the OSHA docket number (i.e., OSHA Docket No. OSHA-2014-0024). OSHA will place comments and other material, including any personal information, in the public docket without revision, and these materials will be available online at: http://www.regulations.gov. Therefore, the Agency cautions commenters about submitting statements they do not want made public, or submitting comments that contain personal information (either about themselves or others), such as social security numbers, birth dates, and medical data.

OSHA invites comments on all issues related to this notice of proposed rulemaking. The Agency also welcomes comments on its findings that this notice of proposed rulemaking will have no impact on the regulated community.

• Docket. To read or download comments or other material in the docket, go to http://www.regulations.gov. The electronic docket for this notice of proposed rule
established at http://www.regulations.gov contains most of the documents in the docket. Some information (e.g., copyrighted material), however, cannot be read or downloaded through this web site. All submissions, including copyrighted material, are accessible at the OSHA Docket Office. Contact the OSHA Docket Office for assistance in locating docket submissions.

FOR FURTHER INFORMATION CONTACT:


Technical inquiries: Contact Kenneth Stevanus, Directorate of Standards and Guidance, Room N-3609, OSHA, U.S. Department of Labor, 200 Constitution Ave., NW, Washington, DC 20210; telephone: (202) 693-2260; fax: (202) 693-1663; email: stevanus.ken@dol.gov.

Copies of this Federal Register notice. Electronic copies of this Federal Register notice are available at http://www.regulations.gov. This Federal Register notice, as well as news releases and other relevant information, also are available at OSHA’s webpage at http://www.osha.gov.

SUPPLEMENTARY INFORMATION:
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I. Background

A. OSHA’s Eye and Face Protection Standards

   The original OSHA standards addressing eye and face protection were adopted in 1971 from established Federal standards and national consensus standards to address the various workplace hazards that pose a significant risk of death or injury. Since then, OSHA has amended its standards on numerous occasions, most recently in 2009 for the general industry, shipyard employment, longshoring, and marine terminals standards (74 FR 46350), and in 1993 for the construction standard (58 FR 35309). See 29 CFR 1910.133 (General Industry); 29 CFR 1915.153 (Shipyard Employment); 29 CFR 1917.91 (Marine Terminals); 29 CFR 1918.101 (Longshoring); and 29 CFR 1926.102 (Construction). The general industry and maritime standards require that eye and face protection comply with national consensus standards incorporated by reference unless the employer demonstrates that non-specified eye and face protection equipment is at least as protective of workers. See 29 CFR 1910.133(b)(2); 29 CFR 1915.153(b)(2); 29 CFR 1917.91(a)(1)(ii); and 29 CFR 1918.101(a)(1)(ii). The construction standard requires that eye and face protection meet the requirements of ANSI Z87.1-1968. See 29 CFR
1926.102(a)(2). Each of these provisions are part of OSHA’s comprehensive requirements to ensure that employees use personal protective equipment that will protect them from hazards in the workplace.

B. ANSI’s Occupational and Educational Eye and Face Protection Standard

ANSI’s Occupational and Educational Eye and Face Protection, Z87.1, was first published in 1968 and revised in 1979, 1989, 2003, and 2010. The 1979 version was nearly identical to the 1968 version; it contained only minor changes in language and organization. The 1989 version emphasized performance requirements to encourage and accommodate advancements in design, materials, technologies, and product performance. Performance requirements were specified wherever practical. Minimum thickness requirements for protectors were added and new impact testing requirements were established to ensure that protectors intended to provide side protection were tested from the side and the front. This version also improved the transmittance requirements for filter lenses. The 2003 version added an enhanced user selection chart with a system for selecting equipment (e.g., spectacles, goggles, and faceshields) that adequately protects from a particular hazard.

Unlike earlier versions, the 2010 version of ANSI Z87.1 focuses on a hazard, such as droplet and splash, impact, optical radiation, dust, fine dust, and mist, and specifies the type of equipment needed to protect from that hazard. Earlier versions focused on protector type, such as spectacles, goggles, faceshields, or welding hats. See Ex. OSHA-2014-0024-0001 (a side-by-side comparison of versions prepared by OSHA). It contains general requirements for all protector types, which assess optical qualities, minimum robustness, ignition, corrosion resistance, and minimum coverage. It also includes
performance assessments that are unique to a specific protector configuration such as welding devices or prescription safety eyewear. Finally, it defines the number of samples to be tested when assessing a protector’s ability to meet applicable performance criteria.

a. Comparison Between the 2010 and 2003 Versions of ANSI Z87.1

The 2010 version of ANSI Z87.1 adds new requirements to and changes the structure of the 2003 version. See Ex. OSHA-2014-0024-0001 (a side-by-side comparison of versions prepared by OSHA). Section 5 of the 2010 version, general requirements, adds Section 5.2, which requires that protectors are free from projections, sharp edges, or other defects. The drop ball impact test, which appeared in Section 7.3.1 of the 2003 version, is in Section 5.2.1 of the 2010 version. Additionally, the test is universally-applied rather than protector-dependent. Section 7.6 of the 2003 version, flammability, has been replaced with Section 5.2.3, ignition. The new section states that protectors shall not ignite or continue to glow once the rod is removed. It also states that each externally-exposed material shall be tested. Section 5.2.5 adds requirements for the minimum coverage area of the eyewire and lens. Section 5.4 adds marking requirements and states that protectors shall bear the permanent marking in specified locations.

In Section 6 of the 2010 version, impact protector requirements, the spectacle frame test that appeared in Section 7.2 of the 2003 version, has been moved to Section 6.12, and now requires components to be tested as a complete device. Section 6.13 adds a requirement for lateral side coverage, and states that the impact-rated protectors shall provide continuous lateral coverage with specified diameters/dimensions. Section 6.2.5 includes qualifications for prescription lens material and lists different ways that the lens can fail to meet the qualifications. Section 6.2.6 adds qualifications for prescription lens
mounting. It also requires that complete devices using representative test lenses meeting the requirements of Section 6.2.5 be capable of resisting high mass and high velocity impact. Section 6.3 provides additional impact requirements for specific protectors, such as devices with lift fronts, welding helmets, and faceshields, and prescription lens carriers behind plano protectors.

Section 7 of the 2010 version, optical radiation protector requirements, adds a requirement to test in lightest to darkest states in Section 7.1.3. Section 7.2.1 adds a requirement that goggle housing intended to provide protection against optical radiation meet transmittance requirements of shade 6 or higher.

Section 8 of the 2010 version, droplet and splash, dust, and fine dust protector requirements, adds a new requirement to Section 8.1.1 that goggles be tested so that the droplets or liquid splash do not cause a red coloration. Section 8.1.2 mandates that a laser beam not make direct contact with any point on the eye-region rectangle “without first being intercepted by the faceshield.”

Section 14 of the 2003 version is section 9 in the 2010 version and addresses test methods. This section requires testing at standard laboratory conditions rather than normal laboratory ambient conditions required in the previous version. Section 9.10 includes new testing requirements for lateral protection to assess the lateral protection area of a complete device. Section 9.14 includes a new prescription lens test that requires lens materials to withstand impact from high velocity. Section 9.16 is a new testing requirement for goggles and faceshields that require a determination of the protector’s capability to keep liquid splashes and sprays from reaching eyes. Sections 9.17 and 9.18 contain new requirements to, respectively, determine the protector’s capability to keep
larger dust particles and fine dust particles from reaching the wearer’s eyes. Finally, Sections 7.8, 8.8, 9.8, and 10.8 of the 2003 version, which addressed cleanability of spectacles and goggles, were removed.

b. Comparison Between the 2010 and 1968 Versions of ANSI Z87.1.

The 2010 version of ANSI Z87.1 also differs significantly from the 1968 version. See Ex. OSHA-2014-0024-0002 (a side-by-side comparison of versions prepared by OSHA).

Whereas the scope of the 1968 version simply states that it applies to all occupational operations, the 2010 scope is far more specific in that it sets forth criteria related to the general requirements, testing, permanent marking, selection, care, and use of protectors to minimize the occurrence and severity or prevention of injuries from the different types of hazards. In addition, the 2010 version excludes more hazardous exposures than the 1968 version, including bloodborne pathogens, microwaves, radio-frequency radiation, and sports and recreation. It also removes nearly all of the definitions contained in the 1968 version and makes significant alterations to the remaining definitions. For example, the 1968 definitions for ultraviolet and infrared radiation were defined as within the range of 50 to 390 nm and 770 to 12000 nm, respectively. The 2010 version defines these ranges from 200 to 380 nm and 780 to 2000 nm, respectively.

C. Overview of Proposed Rulemaking

As discussed in a previous Federal Register notice (69 FR 68283), OSHA is undertaking a series of projects to incorporate the latest versions of national consensus and industry standards into its regulations. These projects include removing outdated national consensus and industry standards and updating regulatory text.
On May 17, 2007, OSHA published a notice of proposed rulemaking (72 FR 27771) entitled “Updating OSHA Standards Based on National Consensus Standards; Personal Protective Equipment.” This notice did not include a revision of the construction industry standards that cover personal protective equipment, which had last been updated in 1993. 58 FR 35160. In response to the notice, the Agency received approximately 25 comments. On December 4, 2007, OSHA held an informal public hearing at which nine witnesses testified. Several of the commenters and witnesses questioned the Agency’s decision not to include the construction industry in this rulemaking. See Exs. OSHA-2007-0044-0021 and -0034; see also, Tr. at 18-19 and 51-52. OSHA responded that limited resources did not permit inclusion of the construction industry at that time. Tr. at 18-19; see also, 74 FR 46352.

On September 9, 2009, OSHA published the final rule (74 FR 46350), which became effective on October 9, 2009, and pertained only to the general industry and maritime standards. The final rule did not include a reference to the 2010 edition of the ANSI standard because this edition was not available to OSHA prior to February 8, 2008, the date on which the administrative law judge who presided over the hearing closed the rulemaking record.

By this notice, OSHA is proposing to update the references in 29 CFR 1910.133(b)(1), 29 CFR 1915.153(b)(1), 29 CFR 1917.91(a)(1)(i), and 29 CFR 1918.101(a)(1)(i) to include ANSI Z87.1-2010, the most recent version of that standard and delete the reference to ANSI Z87.1-1989. As a result, these provisions will allow use of eye and face protection that complies with the three most recent editions of the consensus standard, i.e., ANSI Z87.1-2010, Z87.1-2003 and Z87.1-1989 (R-1998). In addition, OSHA is proposing to
amend 29 CFR 1926.102(a)(2) of the construction standard to remove ANSI Z87.1-1968 and add the three most recent versions of the ANSI standard to 29 CFR 1926.102(b)(1). This will make the ANSI references in the construction standard identical to those in the general industry and maritime standards. This action addresses the comments received during the initial rulemaking, cited above, and as stated above, will ensure consistency among the Agency’s standards. These changes also eliminate any confusion, clarify employer obligations, and provide up-to-date protection for workers exposed to eye and face hazards.

D. Reasonable Availability of the ANSI Standard to the Public

OSHA believes that the ANSI standards included in this proposal are reasonably available to interested parties. The 2010, 2003, and 1989 (R-1998) versions of ANSI Z87.1 can be purchased as a package from ANSI in pdf form for $57 (http://webstore.ansi.org/). All three are also available for purchase at both the IHS Standards (http://global.ihs.com/) or Techstreet (http://www.techstreet.com/) stores. In addition, they are available at OSHA’s docket office for review. In addition, both the 2003 and 1989 (R-1998) versions are available at OSHA’s regional offices for review. If OSHA ultimately finalizes this rule, all three documents would be maintained in OSHA’s national and regional offices for review by the public.

II. Summary and Explanation of Revisions to the Eye and Face Protection Standards

A. Updating the General Industry and Maritime Industry Standards

OSHA adopted the previous revision of the general industry and maritime eye and face protection standards on September 9, 2009. 74 FR 46350. These revisions, which became effective on October 9, 2009, permit compliance with ANSI Z87.1-2003, ANSI

Since it is OSHA’s understanding that eye and face protection is now only designed, tested, or manufactured in accordance with the 2010, 2003, or 1989 (R-1998) versions of ANSI Z87.1, OSHA believes these updates are consistent with the usual and customary practice of employers in the general and maritime industries. Therefore, incorporating by reference ANSI Z87.1-2010, and deleting ANSI Z87.1-1989, will not add a compliance burden for employers. OSHA invites public comment on whether the revisions in the 2010 edition of the consensus standard represent current industry practice, as well as any other issues raised by OSHA’s proposed revisions to the general industry and maritime eye and face protection standards.

B. Updating the Construction Industry Standard

The proposed update to the construction eye and face protection standard involves: (1) changes to the ANSI standard references and (2) inclusion of language from the general industry eye and face protection standard. With respect to the ANSI standard update, OSHA will amend 29 CFR 1926.6 and 1926.102, which currently incorporate by reference ANSI Z87.1-1968, to include the three most recent versions of the ANSI
standard, ANSI Z87.1-2010, ANSI Z87.1-2003, and ANSI Z87.1-1989 (R-1998). With respect to the inclusion of language from the general industry standard, OSHA will modify certain existing language to make it nearly identical to the language in the general industry standard’s eye and face protection provisions. It will also retain provisions unique to the current construction standard that do not appear to be covered in the versions of the ANSI Z87.1 incorporated by the proposal. These changes better reflect the requirements of the newer consensus standards and ease compliance for employers whose employees might also perform work covered by the general industry or maritime standards.

Specifically, OSHA is proposing to replace sections 1926.102(a)(1) through (a)(3), and (a)(7) with the language found in the general industry standard at 1910.133(a)(1) through (a)(4) and 1910.133(b). The Agency will also replace: (1) the statement of scope in section 1926.102(a)(1) with the statement of scope in 1910.133(a)(1); (2) the reference to the 1968 ANSI standard in 1926.102(a)(2) with the updated list of national consensus standards in 1910.133(b)(1); and (3) the requirements for corrective lenses in 1926.102(a)(3) with the corrective-lens requirements in 1910.133(a)(3). The proposal deletes section 1926.102(a)(4)’s requirement to keep the protective equipment clean, in good repair, and free of structural and optical defects. This provision does not appear in 1910.133, and is addressed by requirements in each of the three versions of Z87.1 included in the proposal. See, e.g., ANSI Z87.1-2010 (sections 10.3 and 10.4); ANSI Z87.1-2003 (section 6.2.6); and ANSI Z87.1-1989 (R 1998) (sections 14.4, 14.5, 15.7). The proposal also removes Table E-1, Eye and Face Protector Selection Guide, which is specific to the 1968 version of ANSI Z87.1 and
referenced in the current section 1926.102(a)(5). Removal of Table E-1 is of no consequence because employers and employees may use any of the three newly-referenced ANSI standards, which contain similar selection guides. See ANSI Z87.1-2010, Annex I. Selection Chart, ANSI Z87.1-2003, Annex I-Selection Chart, or ANSI Z87.1-1989 (R-1998), Selection Chart. Once Table E-1 is removed, OSHA will renumber Tables E-2 and E-3 under this paragraph as Tables E-1 and E-2, respectively.

The proposal retains section 1926.102(a)(6) — which specifies, among other requirements, that protectors must be capable of being disinfected, easily cleanable, and durable — because its language does not appear to be in the most recent ANSI standard, Z87.1-2010. The proposal also substitutes the marking requirement specified by section 1926.102(a)(7) with the marking requirement in section 1910.133(a)(4). In addition, the proposal will delete the requirement in 1926.102(a)(8) — that employers must transmit information from manufacturers to users about equipment limitations or precautions and that such limitations and precautions must be strictly observed — to bring the section into closer alignment with the general industry standard because this requirement is covered by requirements in each of the ANSI standards (see ANSI Z87.1-2010, section 10.2; ANSI Z87.1-2003, section 6.2.6; ANSI Z87.1-1989 (R 1998), section 14.2. The language adopted from the general industry standard will add a provision to the construction standard that permits an employer to use eye and face protection not manufactured in accordance with one of the incorporated ANSI Z87.1 standards if the employer can demonstrate compliance with one of the incorporated ANSI Z87.1 standards (i.e., the equivalent-protection provision). Finally, section 1926.102(b) will be redesignated as section 1926.102(c).
OSHA believes that it is consistent with employers’ usual and customary practice in the construction industry to require use of eye and face protection that complies with ANSI Z87.1-2010, ANSI Z87.1-2003, or ANSI Z87.1-1989 (R-1998). Accordingly, the Agency determined that incorporating these editions of ANSI Z87.1 consensus standards for eye and face protection into 29 CFR 1926.102(b)(1) does not add a compliance burden for employers. OSHA invites public comment on whether use of eye and face protection that complies with ANSI Z87.1-2010, ANSI Z87.1-2003, or ANSI Z87.1-1989 (R-1998) and inclusion of language from the general industry standard’s eye and face provisions accords with employers’ usual and customary practice in the construction industry, as well as any other issues raised by OSHA’s proposed revisions to the construction standard for eye and face protection.

III. Procedural Determinations

A. Legal Considerations

The purpose of the Occupational Safety and Health Act of 1970 (OSH Act) is to achieve to the extent possible safe and healthful working conditions for all employees. 29 U.S.C. 651(b). To achieve this goal, Congress authorized the Secretary of Labor to promulgate and enforce occupational safety and health standards. 29 U.S.C. 654(b), 655(b). A safety or health standard is a standard “which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes reasonably necessary or appropriate to provide safe or healthful employment and places of employment.” 29 U.S.C. 652(8). A standard is reasonably necessary or appropriate within the meaning of Section 652(8) of the OSH Act when a significant risk of material harm exists in the workplace and the standard would substantially reduce or eliminate
that workplace risk. See Indus. Union Dep’t, AFL-CIO v. Am. Petroleum Inst., 448 U.S. 607 (1980). OSHA already determined that requirements specified by eye and face protection standards, including design requirements, are reasonably necessary or appropriate within the meaning of Section 652(8). See, e.g., 49 FR 49726, 49737 (1978); 51 FR 33251, 33251-59 (1986).

Moreover, this notice of proposed rulemaking neither reduces employee protection nor alters an employer’s obligations under the existing standards. With respect to employee protection, because the proposal will allow employers to continue to provide the same eye and face protection they currently provide, employees’ protection will not change. In terms of employers’ obligations, the proposal will allow employers additional options for meeting the design-criteria requirements for eye and face protection. Accordingly, this proposal does not require an additional significant risk finding (cf. Edison Elec. Inst. v. OSHA, 849 F.2d 611, 620 (D.C. Cir. 1988)).

In addition, a safety standard must be technologically feasible. See UAW v. OSHA, 37 F.3d 665, 668 (D.C. Cir. 1994). A standard is technologically feasible when the protective measures it requires already exist, when available technology can bring the protective measures into existence, or when that technology is reasonably likely to develop. See Am. Textile Mfrs. Inst. v. OSHA, 452 U.S. 490, 513 (1981); Am. Iron and Steel Inst. v. OSHA, 939 F.2d 975, 980 (D.C. Cir. 1991)). The proposed revisions detailed in this NPRM are technologically feasible because: (1) protectors are already manufactured in accordance with the 2010 ANSI standard or the other versions permitted under the revision and (2) employers already comply with the 2003 and 1998 versions of
the ANSI standard incorporated by reference into the general industry and maritime standards, which will remain in effect under the proposed rule.

B. Preliminary Economic Analysis and Regulatory Flexibility Act Certification

OSHA has preliminarily determined that employers can comply with the proposed rule by following their current usual and customary practice in providing eye and face protection to their employees. Therefore, OSHA finds that this notice of proposed rulemaking is not economically significant within the context of Executive Order 12866, or a major rule under the Unfunded Mandates Reform Act or Section 801 of the Small Business Regulatory Enforcement Fairness Act. In addition, this notice of proposed rulemaking complies with Executive Order 13563 because employers are allowed increased flexibility in choosing eye and face protection for their employees and are not required to update or replace that protection solely as a result of this rule if the employer’s current practice meets the revised standards. Because the rule imposes no costs, OSHA certifies that it will not have a significant economic impact on a substantial number of private or public sector entities and does not meet any of the criteria for an economically significant or major rule specified by the Executive Order or relevant statutes.

C. OMB Review under the Paperwork Reduction Act of 1995

This notice of proposed rulemaking does not establish or revise any collection of information requirements for purposes of the Paperwork Reduction Act of 1995, 44 U.S.C. 3501. Accordingly, the Agency did not submit an Information Collection Request to OMB in association with this rulemaking.
Members of the public may respond to this paperwork determination by sending their written comments to the Office of Information and Regulatory Affairs, Attn: OSHA Desk Officer (RIN 1218-AC77), Office of Management and Budget, Room 10235, 725 17th Street NW, Washington, DC 20503. The Agency encourages commenters to submit these comments to the rulemaking docket, along with their comments on other parts of this notice of proposed rulemaking. For instructions on submitting these comments and accessing the docket, see the sections of this Federal Register document titled DATES and ADDRESSES.

To make inquiries or to request other information contact Mr. Todd Owen, Directorate of Standards and Guidance, OSHA, Room N-3609, U.S. Department of Labor, 200 Constitution Ave., NW, Washington, DC 20210; telephone: (202) 693-2222.

D. Federalism

OSHA reviewed this notice of proposed rulemaking in accordance with the Executive Order on Federalism (Executive Order 13132, 64 FR 43255, August 10, 1999), which requires that agencies, to the extent possible, refrain from limiting state policy options, consult with states prior to taking any actions that would restrict state policy options, and take such actions only when clear constitutional authority exists and the problem is national in scope. Executive Order 13132 provides for preemption of state law only with the expressed consent of Congress. Agencies must limit any such preemption to the extent possible.

Under Section 18 of the OSH Act, 29 U.S.C. 651 et seq., Congress expressly provides that states may adopt, with Federal approval, a plan for the development and enforcement of occupational safety and health standards (29 U.S.C. 667); OSHA refers to
states that obtain Federal approval for such a plan as “State Plan states.” Occupational safety and health standards developed by State Plan states must be at least as effective in providing safe and healthful employment and places of employment as the Federal standards. 29 U.SC. 667. Subject to these requirements, State Plan states are free to develop and enforce under state law their own requirements for occupational safety and health standards.

While OSHA drafted this notice of proposed rulemaking to protect employees in every state, Section 18(c)(2) of the OSH Act permits State Plan states and U.S. territories to develop and enforce their own standards for eye and face protection provided these requirements are at least as effective in providing safe and healthful employment and places of employment as the requirements specified in this notice of proposed rulemaking.

In summary, this notice of proposed rulemaking complies with Executive Order 13132. In states without OSHA-approved state plans, this rulemaking limits state policy options in the same manner as other OSHA standards. In State Plan states, this rulemaking does not significantly limit state policy options because, as explained in the following section, State Plan states do not have to adopt this notice of proposed rulemaking.

E. State Plan States

When Federal OSHA promulgates a new standard or amends an existing standard to be more stringent than it was previously, the 27 states or U.S. territories with their own OSHA-approved occupational safety and health plans must revise their standards to reflect the new standard or amendment, or show OSHA why such action is unnecessary,
e.g., because an existing state standard covering this area is at least as effective in protecting workers as the new Federal standard or amendment. 29 CFR 1953.5(a). In this regard, the state standard must be at least as effective as the final Federal rule. State Plan states must adopt the Federal standard or complete their own standard within six months of the publication date of the final Federal rule. When OSHA promulgates a new standard or amendment that does not impose additional or more stringent requirements than the existing standard, State Plan states need not amend their standards, although OSHA may encourage them to do so. The following 21 states and 1 U.S. territory have OSHA-approved occupational safety and health plans that apply only to private-sector employers: Alaska, Arizona, California, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and Wyoming. In addition, Connecticut, Illinois, New Jersey, New York, and the Virgin Islands have OSHA-approved State Plans that apply only to state and local government employees.

When OSHA promulgates a new final rule, states and territories with approved State Plans must adopt comparable amendments to their standards relating to personal protective equipment across OSHA’s various industries within six months of OSHA’s promulgation of the final rule unless they demonstrate that such a change is not necessary because their existing standards are already the same, or at least as effective, as OSHA’s new final rule.

F. Unfunded Mandates Reform Act of 1995

OSHA reviewed this notice of proposed rulemaking according to the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1501-1571, and Executive Order
12875, 58 FR 58093 (1993). As discussed above in Section IV.B (“Preliminary Economic Analysis and Regulatory Flexibility Certification”) of this preamble, OSHA preliminarily determined that the proposed rule imposes no additional costs on any private-sector or public-sector entity. Accordingly, this notice of proposed rulemaking requires no additional expenditures by either public or private employers.

As noted above under Section IV.E (“State Plan States”) of this preamble, OSHA standards do not apply to state or local governments except in states that elected voluntarily to adopt an OSHA-approved state plan. Consequently, this notice of proposed rulemaking does not meet the definition of a “Federal intergovernmental mandate.” See 2 U.S.C. 658(5). Therefore, for the purposes of the UMRA, OSHA certifies that this notice of proposed rulemaking does not mandate that state, local, or tribal governments adopt new, unfunded regulatory obligations, or increase expenditures by the private sector of more than $100 million in any year.

G. Consultation and Coordination with Indian Tribal Governments

OSHA reviewed this notice of proposed rulemaking in accordance with Executive Order 13175, 65 FR 67249 (2000), and determined that it does not have “tribal implications” as defined in that order. As proposed, the rule does not have substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.

H. Consultation with the Advisory Committee on Construction Safety and Health

Under 29 CFR parts 1911 and 1912, OSHA must consult with the Advisory Committee on Construction Safety and Health (“ACCSH” or “the Committee”),
established pursuant to Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 et seq.), in setting standards for construction work. Specifically, 29 CFR 1911.10(a) requires the Assistant Secretary to provide the ACCSH with a draft proposed rule (along with pertinent factual information) and give the Committee an opportunity to submit recommendations. See also 29 CFR 1912.3(a) (“Whenever occupational safety or health standards for construction activities are proposed, the Assistant Secretary [for Occupational Safety and Health] shall consult the Advisory Committee”).

On May 8, 2014, OSHA presented its proposal to update the Agency’s eye and face protection standards including its construction standard at 29 CFR 1926.102 to the ACCSH. OSHA presented the committee two options for updating of its construction standard. In the first option OSHA proposed to replace the provisions in the construction standard with those of the general industry and maritime standards, except for those that were unique to the construction industry standard. This would make the construction eye and face protection standard nearly identical to the general industry and maritime standards however, it would preserve those provisions that are unique to the construction standard.

The second option proposed would substitute only the three most current ANSI standards for the outdated ANSI standard currently cited and include the new provision allowing the use of any equivalent-protection standards. The remaining provisions of the construction standard would stay intact except for the removal of Table E-1 which references the outdated ANSI standard. This option would retain existing requirements that are familiar to employers and employees in the construction industry. The
Committee subsequently selected the first option and passed a motion recommending that the Agency move forward in the rulemaking process. (See the minutes from the meeting Docket No. OSHA-2014-0024-0004; see also two options for an update, available at Docket No. OSHA-2014-0024-0003).

List of Subjects in 29 CFR Parts 1910, 1915, 1917, 1918, and 1926

Incorporation by reference, Occupational Safety and Health, Personal Protective equipment

IV. Authority and Signature

Signed at Washington, DC, on March 2, 2015.

David Michaels,
Assistant Secretary of Labor for Occupational Safety and Health.

Amendments to Standards
For the reasons stated above in the preamble, the Occupational Safety and Health Administration proposes to amend 29 CFR parts 1910, 1915, 1917, 1918 and 1926 as follows:

PART 1910—[AMENDED]

Subpart A—[Amended]

1. The authority citation for subpart A of part 1910 continues to read as follows:

   Authority: 29 U.S.C. 653, 655, 657; Secretary of Labor’s Order Numbers 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31159), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable.

   Sections 1910.6, 1910.7, 1910.8 and 1910.9 also issued under 29 CFR 1911.


2. Amend § 1910.6 by revising paragraphs (e)(69) through (e)(71) to read as follows:

   § 1910.6 Incorporation by reference.
   *
   *
   *
   *
   *

   (e) * * *

   (69) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, approved April 13, 2010; IBR approved for § 1910.133(b)(1)(i). Copies are available for purchase from:
(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/.

(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or


(70) ANSI Z87.1-2003, Occupational and Educational Eye and Face Personal Protection Devices, approved June 19, 2003; IBR approved for §§ 1910.133(b)(1)(ii). Copies available for purchase from the:

(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/;

(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or


(71) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection; IBR approved for § 1910.133(b)(1)(iii). Copies are available for purchase from:
3. The authority citation for subpart I of part 1910 continues to read as follows:


4. Amend § 1910.133 by revising paragraph (b)(1) to read as follows:

**§ 1910.133 Eye and face protection.**

(b) **Criteria for protective eye and face protection.** (1) Protective eye and face protection devices must comply with any of the following consensus standards:
(i) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1910.6;

(ii) ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1910.6; or

(iii) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection, incorporated by reference in § 1910.6;

*          *          *          *          *

PART 1915—[AMENDED]

5. The authority citation for part 1915 continues to read as follows:

    AUTHORITY: Section 41, Longshore and Harbor Workers’ Compensation Act (33 U.S.C. 941); Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor’s Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable; 29 CFR Part 1911.

    Section 1915.100 also issued under 49 U.S.C. 1801-1819 and 5 U.S.C. 553.

    Sections 1915.120 and 1915.152 of 29 CFR also issued under 29 CFR part 1911.

    SOURCE: 47 FR 16986, Apr. 20, 1982, unless otherwise noted.

6. Amend § 1915.5 by revising paragraphs (d)(1)(vi) through (d)(1)(viii) to read as follows:

    § 1915.5 Incorporation by reference.

        *          *          *          *          *

        (d)(1) *          *          *
(vi) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, approved April 13, 2010; IBR approved for § 1915.153(b)(1)(i). Copies are available for purchase from:

(A) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/;

(B) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or

(C) TechStreet Store, 3916 Ranchero Dr., Ann Arbor, MI 48108; telephone: (877) 699-9277; Web site: http://techstreet.com.


(A) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/;

(B) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or

(C) TechStreet Store, 3916 Ranchero Dr., Ann Arbor, MI 48108; telephone: (877) 699-9277; Web site: http://techstreet.com.
(viii) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection; IBR approved for § 1910.153(b)(1)(iii). Copies are available for purchase from:

(A) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/

(B) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or

(C) TechStreet Store, 3916 Ranchero Dr., Ann Arbor, MI 48108; telephone: (877) 699-9277; Web site: http://techstreet.com.

*          *          *          *          *

Subpart I—[Amended]

7. Amend § 1915.153 by revising paragraph (b)(1) to read as follows:

§ 1915.153 Eye and face protection.

(b) Criteria for protective eye and face devices. (1) Protective eye and face protection devices must comply with any of the following consensus standards:

(i) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1915.5;

(ii) ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1915.5; or
(iii) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection, incorporated by reference in § 1915.5;

*   *   *   *   *

PART 1917—[AMENDED]

8. The authority citation for part 1917 continues to read as follows:

   AUTHORITY: 33 U.S.C. 941; 29 U.S.C. 653, 655, 657; Secretary of Labor’s Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable; and 29 CFR 1911.

   Section 1917.28 also issued under 5 U.S.C. 553.

   Section 1917.29 also issued under 49 U.S.C. 1801-1819 and 5 U.S.C. 553.

   SOURCE: 48 FR 30909, July 5, 1983, unless otherwise noted.

*   *   *   *   *

9. Amend § 1917.3 by revising paragraphs (b)(6) through (b)(8) to read as follows:

§ 1917.3 Incorporation by reference.

*   *   *   *   *

(b) *   *   *

(6) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, approved April 13, 2010; IBR approved for § 1917.91(a)(1)(i)(A). Copies are available for purchase from:

(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site:

http://webstore.ansi.org/;
(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or


(7) ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices, approved June 19, 2003; IBR approved for § 1917.91(a)(1)(i)(B). Copies available for purchase from the:

(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/;

(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or


(8) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection; IBR approved for § 1917.91(a)(1)(i)(C). Copies are available for purchase from:

(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/;
(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone:
(877) 413-5184; Web site: http://global.ihs.com; or


*          *          *          *          *          *

Subpart E—[Amended]

10. Amend § 1917.91 by revising paragraph (a)(1)(i) to read as follows:

§ 1917.91 Eye and face protection.

(a)(1)(i) The employer shall ensure that each affected employee uses protective eye and
face protection devices that comply with any of the following consensus standards:

(A) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection
Devices, incorporated by reference in § 1917.3;

(B) ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection
Devices, incorporated by reference in § 1917.3;

or

(C) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face
Protection, incorporated by reference in § 1917.3;

*          *          *          *          *          *

PART 1918—[AMENDED]

11. The authority citation for part 1918 is revised to read as follows:

Authority: 33 U.S.C. 941; 29 U.S.C. 653, 655, 657; Secretary of Labor’s Order
No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-
96 (62 FR 111), 3-2000 (65 FR 50017), 5-2002 (67 FR 65008), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable; and 29 CFR 1911.

Section 1918.90 also issued under 5 U.S.C. 553.

Section 1918.100 also issued under 49 U.S.C. 1801-1819 and 5 U.S.C. 553.

SOURCE: 62 FR 40202, July 25, 1997, unless otherwise noted.

12. Amend § 1918.3 by revising paragraphs (b)(6) through (b)(8) to read as follows:

§ 1918.3 Incorporation by reference.

* * * *

(b) * * *

(6) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, approved April 13, 2010; IBR approved for § 1918.101(a)(1)(i)(A). Copies are available for purchase from:

(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/;

(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or


(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/

(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or


(8) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection; IBR approved for § 1918.101(a)(1)(i)(C). Copies are available for purchase from:

(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/

(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or

Subpart J—[Amended]

13. Amend § 1918.101 by revising paragraph (a)(1)(i) to read as follows:

§ 1918.101 Eye and face protection.

(a)

(1)(i) Employers must ensure that each employee uses appropriate eye and/or face protection when the employee is exposed to an eye or face hazards, and that protective eye and face devices comply with any of the following consensus standards:

(A) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1918.3;

(B) ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1918.3; or

(C) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection, incorporated by reference in § 1918.3

PART 1926—[AMENDED]

A—General [Amended]

14. The authority citation for subpart A of part 1926 continues to read as follows:

AUTHORITY: 40 U.S.C. 3701 et seq.; 29 U.S.C. 653, 655, 657; Secretary of Labor’s Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 111), 5-2002 (67 FR 65008), 5–2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable; and 29 CFR part 1911.
15. Amend §1926.6 as follows:

a. Revise paragraph (h)(31);

b. Redesignate paragraphs (h)(32) thru (h)(34) as (h)(34) thru (h)(36);

c. Add new paragraphs (h)(32) and (h)(33).

   The revisions and additions read as follows:

§ 1926.6 Incorporation by reference.
*
*
*
*

(h) *
*
*

(31) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, approved April 13, 2010; IBR approved for § 1926.102(b)(1)(i). Copies are available for purchase from:

(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/;

(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or


(32) ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices, approved June 19, 2003; IBR approved for § 1926.102(b)(2)(ii). Copies available for purchase from the:
(33) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection; IBR approved for § 1926.102(b)(2)(iii). Copies are available for purchase from:

(i) American National Standards Institute’s e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: (212) 642-4980; Web site: http://webstore.ansi.org/;

(ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: (877) 413-5184; Web site: http://global.ihs.com; or


* * * * * * *

Subpart E—[Amended]

16. Revise the authority citation for subpart E of part 1926 to read as follows:
**Authority:** 40 U.S.C. 3701 et seq.; 29 U.S.C. 653, 655, 657; Secretary of Labor’s Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), 6-96 (62 FR 8754), 5-2002 (67 FR 65008), 5-2007 (72 FR 31160), 4-2010 (75 FR 55355), or 1-2012 (77 FR 3912), as applicable; and 29 CFR part 1911.

17. Amend §1926.102 as follows:


b. Delete paragraphs (a)(5), (a)(7), (a)(8) and Table E-1.

c. Redesignate paragraph (a)(6) as (a)(5) and Tables E-2 and E-3 as Tables E-1 and E-2.

d. Revise paragraph (b).

e. Add paragraph (c).

The additions and revisions read as follows:

§1926.102 Eye and face protection.

(a) General requirements. (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 liquids, chemical gases or vapors, or potentially injurious light radiation.

(2) The employer shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (e.g. clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable.

(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.

(4) Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.

* * * * *

(b) Criteria for protective eye and face protection. (1) Protective eye and face protection devices must comply with any of the following consensus standards:

(i) ANSI Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1926.6;
(ii) ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1926.6; or
(iii) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection, incorporated by reference in § 1926.6;

(2) Protective eye and face protection devices that the employer demonstrates are at least as effective as protective eye and face protection devices that are constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.

(c) Protection against radiant energy—(1) Selection of shade numbers for welding filter. Table E-1 shall be used as a guide for the selection of the proper shade numbers of filter
lenses or plates used in welding. Shades more dense than those listed may be used to suit the individual’s needs.

**TABLE E-1—FILTER LENS SHADE NUMBERS FOR PROTECTION AGAINST RADIANT ENERGY**

<table>
<thead>
<tr>
<th>Welding operation</th>
<th>Shade number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shielded metal-arc welding 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes</td>
<td>10</td>
</tr>
<tr>
<td>Gas-shielded arc welding (nonferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes</td>
<td>11</td>
</tr>
<tr>
<td>Gas-shielded arc welding (ferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes</td>
<td>12</td>
</tr>
<tr>
<td>Shielded metal-arc welding 3/16-, 7/32-, 1/4-inch diameter electrodes</td>
<td>12</td>
</tr>
<tr>
<td>5/16-, 3/8-inch diameter electrodes</td>
<td>14</td>
</tr>
<tr>
<td>Atomic hydrogen welding</td>
<td>10-14</td>
</tr>
<tr>
<td>Carbon-arc welding</td>
<td>14</td>
</tr>
<tr>
<td>Soldering</td>
<td>2</td>
</tr>
<tr>
<td>Torch brazing</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Light cutting, up to 1 inch</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Medium cutting, 1 inch to 6 inches</td>
<td>4 or 5</td>
</tr>
<tr>
<td>Heavy cutting, over 6 inches</td>
<td>5 or 6</td>
</tr>
<tr>
<td>Gas welding (light), up to 1/8-inch</td>
<td>4 or 5</td>
</tr>
<tr>
<td>Gas welding (medium), 1/8-inch to 1/2-inch</td>
<td>5 or 6</td>
</tr>
<tr>
<td>Gas welding (heavy), over 1/2-inch</td>
<td>6 or 8</td>
</tr>
</tbody>
</table>

(2) **Laser protection.** (i) Employees whose occupation or assignment requires exposure to laser beams shall be furnished suitable laser safety goggles which will protect for the specific wavelength of the laser and be of optical density (O.D.) adequate for the energy involved. Table E-2 lists the maximum power or energy density for which adequate protection is afforded by glasses of optical densities from 5 through 8.
Output levels falling between lines in this table shall require the higher optical density.

(ii) All protective goggles shall bear a label identifying the following data:

(A) The laser wavelengths for which use is intended;

(B) The optical density of those wavelengths;

(C) The visible light transmission.

**Billing Code: 4510-26-P**

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