



Oregon Administrative Rules
Chapter 437

Division 3
Construction

Personal Protective & Life
Saving Equipment

Subdivision

E

AO 1-2016



The Oregon Department of Consumer and Business Services adopted these rules pursuant to ORS 654.025(2).

The Secretary of State designated OAR Chapter 437 as the "Oregon Occupational Safety and Health Code." Six general subject areas within this code are designated as "Divisions."

- **Division 1** General Administrative Rules
- **Division 2** General Occupational Safety and Health Rules
- **Division 3** Construction
- **Division 4** Agriculture
- **Division 5** Maritime Activities
- **Division 7** Forest Activities
- **Oregon Revised Statutes (ORS) 654** The Oregon Safe Employment Act (OSEAct)

Oregon-initiated rules in this division of the Oregon Occupational Safety and Health Code are numbered in a uniform system developed by the Secretary of State. This system does not number the rules in sequence (001, 002, 003, etc.). Omitted numbers may be assigned to new rules at the time of their adoption.

Oregon-initiated rules are arranged in the following Basic Codification Structure adopted by the Secretary of State for Oregon Administrative Rules (OAR):

Chapter	Division	Rule	Section	Subsection	Paragraphs
<i>437</i>	<i>003</i>	<i>1760</i>	<i>(1)</i>	<i>(a)</i>	<i>(A)(i)(I)</i>

The majority of Oregon OSHA rules are adopted by reference from the Code of Federal Regulations (CFR), and are arranged in the following basic federal numbering system:

Chapter	Division	Part	Subpart (Subdivision)	Section	Paragraphs
437	003	1926	E	.502	(a)

The terms "subdivision" and "subpart" are synonymous within OAR 437, Oregon Occupational Safety and Health Code.

To obtain an order form or copies of these codes, address:

Department of Consumer & Business Services
Oregon Occupational Safety & Health Division (Oregon OSHA)
350 Winter St. NE, 3rd Floor
Salem, OR 97301-3882

Or call the Oregon OSHA Resource Library at 503-378-3272

The rules referenced in this division are available for viewing in the Office of the Secretary of State, Administrative Rules and Office Document Section, Oregon State Archives Building, Salem, Oregon 97310, or the Central Office, Oregon Occupational Safety and Health Division of the Department of Consumer and Business Services, 350 Winter St. NE Salem, OR 97301- 3882. Please visit our web site: osha.oregon.gov.

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437-003-0001 Adoption by Reference

In addition to, and not in lieu of, any other safety and health codes contained in OAR Chapter 437, the Department adopts by reference the following federal regulations printed as part of the Code of Federal Regulations, in the Federal Register:

(5) Subdivision E – Personal Protective and Life Saving Equipment.

(a) 29 CFR 1926.95 Criteria for personal protective equipment. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.

(b) 29 CFR 1926.97 Electrical protective equipment, published 4/11/14, FR vol. 79, p. 20316.

(c) 29 CFR 1926.100 Head protection. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.

(d) 29 CFR 1926.101 Hearing protection. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.

(e) 29 CFR 1926.102 Eye and face protection. REPEALED with Oregon OSHA Admin. Order 2-2013, filed 2/15/13, effective 4/1/13. In Oregon, OAR 437-003-0134 applies.

(f) 29 CFR 1926.103 Respiratory protection, published 1/8/98, FR vol. 63, no. 5, p. 1297.

NOTE: 29 CFR 1926.104 Removed, 8/9/94, FR vol. 59, no. 152, p. 40729.

(g) 29 CFR 1926.105 Reserved, 8/9/94, FR vol. 59, no. 152, p. 40729.

(h) 29 CFR 1926.106 Working over or near water, published 4/6/79, FR vol. 44, p. 20940.

(i) 29 CFR 1926.107 Definitions applicable to this subpart, published 8/9/94, FR vol. 59, no. 152, p. 40729.

These standards are available at the Oregon Occupational Safety and Health Division, Oregon Department of Consumer and Business Services, and the United States Government Printing Office.

Stat. Auth.: ORS 654.025(2) and 656.726(4).

Stats. Implemented: ORS 654.001 through 654.295.

Hist: APD Admin. Order 5-1989, f. 3/31/89, ef. 5/1/89 (temp).

APD Admin. Order 8-1989, f. 7/7/89, ef. 7/7/89 (perm).

APD Admin. Order 14-1989, f. 7/20/89, ef. 8/1/89 (temp).
APD Admin. Order 15-1989, f. 9/13/89, ef. 9/13/89 (perm).
APD Admin. Order 16-1989 (temp), f. 9/13/89, ef. 9/13/89.
OR-OSHA Admin. Order 2-1989, f. 10/17/89, ef. 10/17/89.
OR-OSHA Admin. Order 3-1990, f. 1/19/90, ef. 1/19/90 (temp).
OR-OSHA Admin. Order 7-1990, f. 3/2/90, ef. 3/2/90 (perm).
OR-OSHA Admin. Order 8-1990, f. 3/30/90, ef. 3/30/90.
OR-OSHA Admin. Order 13-1990, f. 6/28/90, ef. 8/1/90 (temp).
OR-OSHA Admin. Order 19-1990, f. 8/31/90, ef. 8/31/90 (perm).
OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.
OR-OSHA Admin. Order 6-1991, f. 3/18/91, ef. 4/15/91.
OR-OSHA Admin. Order 7-1991, f. 4/25/91, ef. 4/25/91.
OR-OSHA Admin. Order 15-1991, f. 12/13/91, ef. 12/13/91.
OR-OSHA Admin. Order 16-1991, f. 12/16/91, ef. 1/1/92.
OR-OSHA Admin. Order 6-1992, f. 5/18/92, ef. 5/18/92.
OR-OSHA Admin. Order 11-1992, f. 10/9/92, ef. 10/9/92.
OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93.
OR-OSHA Admin. Order 16-1993, f. 11/1/93, ef. 11/1/93 (Lead).
OR-OSHA Admin. Order 1-1994, f. 4/27/94, ef. 4/27/94.
OR-OSHA Admin. Order 4-1994, f. 8/4/94, ef. 8/4/94 (HazCom).
OR-OSHA Admin. Order 6-1994, f. 9/30/94, ef. 9/30/94.
OR-OSHA Admin. Order 1-1995, f. 1/19/95, ef. 1/19/95 (DOT markings, placards & labels).
OR-OSHA Admin. Order 3-1995, f. 2/22/95, ef. 2/22/95 (Haz Waste).
OR-OSHA Admin. Order 4-1995, f. 3/29/95, ef. 3/29/95 (Asbestos).
OR-OSHA Admin. Order 5-1995, f. 4/6/95, ef. 4/6/95 (HazCom).
OR-OSHA Admin. Order 6-1995, f. 4/18/95, ef. 6/1/95 (Fall Protection).
OR-OSHA Admin. Order 8-1995, f. 8/25/95, ef. 8/25/95 (Asbestos).
OR-OSHA Admin. Order 5-1996, f. 11/29/96, ef. 11/29/96.
OR-OSHA Admin. Order 6-1996, f. 11/29/96, ef. 11/29/96.
OR-OSHA Admin. Order 2-1997, f. 3/12/97, ef. 3/12/97.
OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.
OR-OSHA Admin. Order 6-1997, f. 5/2/97, ef. 5/2/97.
OR-OSHA Admin. Order 7-1997, f. 9/15/97, ef. 9/15/97 (Fall Protection).
OR-OSHA Admin. Order 8-1997, f. 11/14/97, e. 11/14/97 (Methylene Chloride).
OR-OSHA Admin. Order 1-1998, f. 2/13/98, e. 2/13/98 (Methylene Chloride).
OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98 (Respiratory Protection).
OR-OSHA Admin. Order 6-1998, f. 10/15/98, ef. 10/15/98 (Slings 3/H).
OR-OSHA Admin. Order 7-1998, f. 12/28/98, ef. 12/28/98 (Asbestos).
OR-OSHA Admin. Order 1-1999, f. 3/22/99, e. 3/22/99 (Methylene Chloride).
OR-OSHA Admin. Order 4-1999, f. 4/30/99, ef. 4/30/99.
OR-OSHA Admin. Order 6-1999, f. 5/26/99, ef. 5/26/99.
OR-OSHA Admin. Order 3-2000, f. 2/8/00, ef. 2/8/00.
OR-OSHA Admin. Order 3-2001, f. 2/5/01, ef. 2/5/01 (Fall Protection/Oregon Exceptions).
OR-OSHA Admin. Order 3-2002, f. 4/15/02, ef. 4/18/02 (Steel Erection).
OR-OSHA Admin. Order 5-2002, f. 6/28/02, ef. 10/1/03 (GFCI 3/K).
OR-OSHA Admin. Order 6-2002, f. 7/19/02, ef. 7/19/02 (Fall Protection/Steel Erection).
OR-OSHA Admin. Order 1-2003, f. 1/30/03, ef. 4/30/03 (3/Q Masonry Wall Bracing).
OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03 (3/G).
OR-OSHA Admin. Order 7-2003, f. 12/5/03, ef. 12/5/03 (3/O).
OR-OSHA Admin. Order 8-2003, f. 12/30/03, ef. 1/1/04 (3/R).
OR-OSHA Admin. Order 1-2005, f. 4/12/05, ef. 4/12/05 (3/D and 3/Z).
OR-OSHA Admin. Order 2-2006, f. 4/28/06, ef. 4/28/06 (3/R).
OR-OSHA Admin. Order 4-2006, f. 7/24/06, ef. 7/24/06.
OR-OSHA Admin. Order 5-2006, f. 8/7/06, ef. 1/1/07.
OR-OSHA Admin. Order 6-2006, f. 8/30/06, ef. 8/30/06.
OR-OSHA Admin. Order 10-2006, f. 11/30/06, ef. 11/30/06.
OR-OSHA Admin. Order 6-2007, f. 9/26/07, ef. 9/26/07 (3/O).
OR-OSHA Admin. Order 5-2008, f. 5/1/08, ef. 5/15/08 (PPE).
OR-OSHA Admin. Order 5-2009, f. 5/29/09, ef. 5/29/09.
OR-OSHA Admin. Order 3-2010, f. 6/10/10, ef. 6/15/10.
OR-OSHA Admin. Order 1-2011, f. 2/9/11, ef. 2/9/11.
OR-OSHA Admin. Order 4-2011, f. 12/8/11, ef. 12/8/11.
OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12.
OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.
OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.
OR-OSHA Admin. Order 1-2013, f. 2/14/13, ef. 2/14/13.
OR-OSHA Admin. Order 2-2013, f. 2/15/13, ef. 4/1/13.
OR-OSHA Admin. Order 4-2013, f. 7/19/13, ef. 7/19/13.
OR-OSHA Admin. Order 5-2013, f. 9/13/13, ef. 9/13/13.
OR-OSHA Admin. Order 6-2013, f. 10/9/13, ef. 10/9/13.
OR-OSHA Admin. Order 7-2013, f. 12/12/13, ef. 12/12/13.
OR-OSHA Admin. Order 6-2014, f. 10/28/14, ef. 5/1/15.
OR-OSHA Admin. Order 7-2014, f. 11/7/14, ef. 11/9/14.
OR-OSHA Admin. Order 3-2015, f. 10/19/15, ef. 1/1/1

Authority: Sec. 107, Contract Work Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); 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), 1-90 (55 FR 9033), 6-96 (62 FR 111), 5-2002 (67 FR 65008), or 5-2007 (72 FR 31160), as applicable; and 29 CFR part 1911.

437-003-0134 Personal Protective Equipment

Application. This rule applies to personal protective equipment and other protective equipment for the eyes, face, head, extremities and torso to include protective clothing, respiratory devices, and protective shields and barriers, wherever employees encounter hazardous processes or environments, chemical hazards, radiological hazards, or mechanical irritants that are capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

(1) Hazard assessment and equipment selection.

(a) The employer must assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE) or other protective equipment. If such hazards are present, or likely to be present, the employer must:

(A) Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;

(i) All protective equipment must be of safe design and construction for the work to be performed.

(ii) Protective equipment must be worn and used in a manner which will make full use of its protective properties.

(B) Communicate selection decisions to each affected employee; and,

(C) Select PPE that properly fits each affected employee.

Note: Non-mandatory Appendix B to Subdivision 2/I, contains an example of procedures that would comply with the requirement for a hazard assessment.

(2) Equipment.

(a) Where employees provide their own protective equipment, the employer is responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

(b) All personal protective equipment must be provided, used, and maintained in a sanitary and reliable condition.

(c) Defective or damaged personal protective equipment must not be used.

(d) Each employer must maintain a regular system of inspection and maintenance of personal protective equipment furnished to workers.

(3) Training.

(a) The employer must provide training to each employee who is required by this section to use PPE and each employee that is provided training must know at least the following:

(A) When PPE is necessary;

(B) What PPE is necessary;

(C) How to properly don, doff, adjust, and wear PPE;

(D) The limitations of the PPE; and,

(E) The proper care, maintenance, useful life and disposal of the PPE.

(b) Each affected employee must demonstrate an understanding of the training specified in paragraph (3)(a) of this section, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

(c) When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph (3)(b) of this section, the employer must retrain each such employee. Circumstances where retraining is required include, but are not limited to situations where:

(A) Changes in the workplace render previous training obsolete; or

(B) Changes in the types of PPE to be used render previous training obsolete; or

(C) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

(4) Payment for protective equipment.

- (a) *Except as provided by paragraphs (4)(b) through (4)(f) of this section, the protective equipment, including personal protective equipment (PPE), used to comply with this part, must be provided by the employer at no cost to employees.*
- (b) *The employer is not required to pay for non-specialty safety-toe protective footwear (including steel-toe shoes or steel-toe boots) and non-specialty prescription safety eyewear, provided that the employer permits such items to be worn off the job-site.*
- (c) *When the employer provides metatarsal guards and allows the employee, at his or her request, to use shoes or boots with built-in metatarsal protection, the employer is not required to reimburse the employee for the shoes or boots.*
- (d) *The employer is not required to pay for:*
- (A) *The logging boots required by OAR 437-007-0330 in Division 7.*
 - (B) *Everyday clothing, such as long-sleeve shirts, long pants, street shoes, and normal work boots; or*
 - (C) *Ordinary clothing, skin creams, or other items, used solely for protection from weather, such as winter coats, jackets, gloves, parkas, rubber boots, hats, raincoats, ordinary sunglasses, and sunscreen.*
- (e) *The employer must pay for replacement PPE, except when the employee has lost or intentionally damaged the PPE.*
- (f) *Where an employee provides adequate protective equipment he or she owns pursuant to paragraph (2)(a) of this section, the employer may allow the employee to use it and is not required to reimburse the employee for that equipment. The employer must not require an employee to provide or pay for his or her own PPE, unless the PPE is excepted by paragraphs (4)(b) through (4)(e) of this section.*
- (5) *Fall Protection. When fall protection systems are required by another standard, the employer must ensure that fall protection systems are provided, installed, and implemented according to the criteria in 1926.502, 437-003-0502, 437-003-1502, and 437-003-2502 in Division 3/M, Fall Protection.*
- (6) *Work Clothing.*
- (a) *Clothing must be worn which is appropriate to the work performed and conditions encountered.*

- (b) Appropriate high temperature protective clothing must be worn by workers who are exposed to possible contact with molten metals or other substances that can cause burns.*
- (c) Loose sleeves, ties, lapels, cuffs, or other loose clothing must not be worn near moving machinery.*
- (d) Clothing saturated or impregnated with flammable liquids, corrosive or toxic substances, irritants, or oxidizing agents must be removed immediately and not worn again until properly cleaned.*
- (e) Rings, wristwatches, earrings, bracelets, and other jewelry which might contact power driven machinery or electric circuitry, must not be worn.*

(7) High Visibility Garments.

- (a) Employees exposed to hazards caused by on highway type moving vehicles in construction zones and street/highway traffic must wear highly visible upper body garments. The colors must contrast with other colors in the area sufficiently to make the worker stand out. Colors equivalent to strong red, strong orange, strong yellow, strong yellow-green or fluorescent versions of these colors are acceptable. During hours of darkness, the garments must also have reflective material visible from all sides for 1000 feet.*

(8) Eye And Face Protection.

- (a) The employer must 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.*
- (b) The employer must 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.*
- (c) The employer must 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 shall wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.*

- (d) Eye and face PPE must be distinctly marked to facilitate identification of the manufacturer.*
- (e) The employer must ensure that each affected employee uses equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation.*

Table 1 - Filter Lenses for Protection Against Radiant Energy

Operations	Electrode Size 1/32 in.	Arc Current (amps)	Minimum* Protective Shade
Shielded metal arc welding	Less than 3	Less than 60	7
	3-5	60-160	8
	5-8	160-250	10
	More than 8	250-550	11
Gas metal arc welding and flux cored arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas Tungsten arc welding		Less than 50	8
		50-150	8
		150-500	10
Air carbon Arc cutting	(Light)	Less than 500	10
	(Heavy)	500-1000	11
Plasma arc welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	(Light) **	Less than 300	8
	(Medium) **	300-400	9
	(Heavy) **	400-800	10
Torch brazing			3
Torch soldering			2
Carbon arc welding			14

Table 2 - Filter Lenses for Protection Against Radiant Energy

Operations	Plate thickness – inches	Plate thickness – mm	Minimum* Protective Shade
Gas Welding:			
Light	Under 1/8	Under 3.2	4
Medium	1/8 to 1/2	3.2 to 12.7	5
Heavy	Over 1/2	Over 12.7	6
Oxygen Cutting:			
Light	Under 1	Under 25	3
Medium	1 to 6	25 to 150	4
Heavy	Over 6	Over 150	5

* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

** These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the work piece.

(f) Protective eye and face protection devices must comply with any of the following consensus Standards.

(A) ANSI Z87.1-2003, American National Standard Practice for Occupational and Educational Eye and Face Protection, which is incorporated by reference in 1910.6;

(B) ANSI Z87.1-1989 (R-1998), American National Standard Practice for Occupational and Educational Eye and Face Protection, which is incorporated by reference in 1910.6; or

(C) ANSI Z87.1-1989, American National Standard Practice for Occupational and Educational Eye and Face Protection, which is incorporated by reference in 1910.6.

(g) 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.

(h) Employees whose occupation or assignment requires exposure to laser beams shall be furnished laser safety goggles as required by Occupational Health Regulations which will protect for the specific wavelength of the laser and be of optical density adequate for the energy involved.

(9) Head Protection.

- (a) The employer must ensure that each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head from falling or flying objects.*
- (b) The employer must ensure that a protective helmet designed to reduce electrical shock hazard is worn by each such affected employee when near exposed electrical conductors which could contact the head.*
- (c) Head protection must comply with any of the following consensus standards:
 - (A) ANSI Z89.1-2009, American National Standard for Industrial Head Protection, which is incorporated by reference in 1910.6;*
 - (B) ANSI Z89.1-2003, American National Standard for Industrial Head Protection, which is incorporated by reference in 1910.6;*
 - (C) ANSI Z89.1-1997, American National Standard for Industrial Head Protection, which is incorporated by reference in 1910.6; or**
- (d) Head protection devices that the employer demonstrates are at least as effective as head 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.*
- (e) Employees who are exposed to power-driven machinery or to sources of ignition shall wear caps or other head covering which completely covers the hair.*

(10) Foot Protection.

- (a) The employer must ensure that each affected employee use protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards.*
- (b) Protective footwear must comply with any of the following consensus standards:
 - (A) ASTM F-2412-2005, Standard Test Methods for Foot Protection, and ASTM F-2413-2005, Standard Specification for Performance Requirements for Protective Footwear, which are incorporated by reference in 1910.6;**

(B) ANSI Z41-1999, American National Standard for Personal Protection – Protective Footwear, which is incorporated by reference in 1910.6; or

(C) ANSI Z41-1991, American National Standard for Personal Protection – Protective Footwear, which is incorporated by reference in §1910.6.

(c) Protective footwear that the employer demonstrates is at least as effective as protective footwear that is constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.

(d) Special types or designs of shoes or foot guards are required where conditions exist that make their use necessary for the safety of workers.

(11) Leg protection.

(a) Leggings or high boots of leather, rubber, or other suitable material must be worn by persons exposed to hot substances or dangerous chemical spills.

(b) Employees using chain saws must wear chaps or leg protectors that cover the leg from the upper thigh to mid-calf. The protector must be material designed to resist cuts from the chain saw. Employers must provide this protection at no cost to the employee.

(12) Hand Protection.

(a) Employers must select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

(b) Employers must base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified.

(c) Gloves must not be worn by persons whose hands are exposed to moving parts in which they could be caught.

(13) Skin protection.

(a) Where the need for their use is necessary, protective covering, ointments, gloves, or other effective protection must be provided for and used by persons exposed to materials which are hazardous to the skin.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: OR-OSHA Admin. Order 2-2013, f. 2/15/13, ef. 4/1/13.
OR-OSHA Admin. Order 1-2016, f. 3/1/16, ef. 1/1/17.

1926.97 Electrical Protective Equipment

- (a) Design requirements for specific types of electrical protective equipment. Rubber insulating blankets, rubber insulating matting, rubber insulating covers, rubber insulating line hose, rubber insulating gloves, and rubber insulating sleeves shall meet the following requirements:
- (1) Manufacture and marking of rubber insulating equipment.
 - (i) Blankets, gloves, and sleeves shall be produced by a seamless process
 - (ii) Each item shall be clearly marked as follows
 - (A) Class 00 equipment shall be marked Class 00
 - (B) Class 0 equipment shall be marked Class 0
 - (C) Class 1 equipment shall be marked Class 1.
 - (D) Class 2 equipment shall be marked Class 2.
 - (E) Class 3 equipment shall be marked Class 3.
 - (F) Class 4 equipment shall be marked Class 4.
 - (G) Non-ozone-resistant equipment shall be marked Type I.
 - (H) Ozone-resistant equipment shall be marked Type II.
 - (I) Other relevant markings, such as the manufacturer's identification and the size of the equipment, may also be provided.
 - (iii) Markings shall be non-conducting and shall be applied in such a manner as not to impair the insulating qualities of the equipment.
 - (iv) Markings on gloves shall be confined to the cuff portion of the glove.
 - (2) Electrical requirements.
 - (i) Equipment shall be capable of withstanding the ac proof-test voltage specified in Table E-1 or the dc proof-test voltage specified in Table E-2.

- (A) The proof-test shall reliably indicate that the equipment can withstand the voltage involved.
 - (B) The test voltage shall be applied continuously for 3 minutes for equipment other than matting and shall be applied continuously for 1 minute for matting.
 - (C) Gloves shall also be capable of separately withstanding the ac proof-test voltage specified in Table E-1 after a 16-hour water soak. (See the note following paragraph (a)(3)(ii)(B) of this section.)
- (ii) When the ac proof-test is used on gloves, the 60-hertz proof-test current may not exceed the values specified in Table E-1 at any time during the test period.
- (A) If the ac proof-test is made at a frequency other than 60 hertz, the permissible proof-test current shall be computed from the direct ratio of the frequencies.
 - (B) For the test, gloves (right side out) shall be filled with tap water and immersed in water to a depth that is in accordance with Table E-3. Water shall be added to or removed from the glove, as necessary, so that the water level is the same inside and outside the glove.
 - (C) After the 16-hour water soak specified in paragraph (a)(2)(i)(C) of this section, the 60-hertz proof-test current may not exceed the values given in Table E-1 by more than 2 milliamperes.
- (iii) Equipment that has been subjected to a minimum breakdown voltage test may not be used for electrical protection. (See the note following paragraph (a)(3)(ii)(B) of this section.)
- (iv) Material used for Type II insulating equipment shall be capable of withstanding an ozone test, with no visible effects. The ozone test shall reliably indicate that the material will resist ozone exposure in actual use. Any visible signs of ozone deterioration of the material, such as checking, cracking, breaks, or pitting, is evidence of failure to meet the requirements for ozone-resistant material. (See the note following paragraph (a)(3)(ii)(B) of this section.)

(3) Workmanship and finish.

- (i) Equipment shall be free of physical irregularities that can adversely affect the insulating properties of the equipment and that can be detected by the tests or inspections required under this section.
- (ii) Surface irregularities that may be present on all rubber goods (because of imperfections on forms or molds or because of inherent difficulties in the manufacturing process) and that may appear as indentations, protuberances, or imbedded foreign material are acceptable under the following conditions:
 - (A) The indentation or protuberance blends into a smooth slope when the material is stretched.
 - (B) Foreign material remains in place when the insulating material is folded and stretches with the insulating material surrounding it.

Note to paragraph (a): Rubber insulating equipment meeting the following national consensus standards is deemed to be in compliance with the performance requirements of paragraph (a) of this section:

American Society for Testing and Materials (ASTM) D120-09, Standard Specification for Rubber Insulating Gloves.

ASTM D178-01 (2010), Standard Specification for Rubber Insulating Matting.

ASTM D1048-12, Standard Specification for Rubber Insulating Blankets.

ASTM D1049-98 (2010), Standard Specification for Rubber Insulating Covers.

ASTM D1050-05 (2011), Standard Specification for Rubber Insulating Line Hose.

ASTM D1051-08, Standard Specification for Rubber Insulating Sleeves.

The preceding standards also contain specifications for conducting the various tests required in paragraph (a) of this section. For example, the ac and dc proof tests, the breakdown test, the water-soak procedure, and the ozone test mentioned in this paragraph are described in detail in these ASTM standards.

ASTM F1236-96 (2012), Standard Guide for Visual Inspection of Electrical Protective Rubber Products, presents methods and techniques for the visual inspection of electrical protective equipment made of rubber. This guide also contains descriptions and photographs of irregularities that can be found in this equipment.

ASTM F819-10, Standard Terminology Relating to Electrical Protective Equipment for Workers, includes definitions of terms relating to the electrical protective equipment covered under this section.

(b) Design requirements for other types of electrical protective equipment. The following requirements apply to the design and manufacture of electrical protective equipment that is not covered by paragraph (a) of this section:

(1) Voltage withstand. Insulating equipment used for the protection of employees shall be capable of withstanding, without failure, the voltages that may be imposed upon it.

Note to paragraph (b)(1): These voltages include transient overvoltages, such as switching surges, as well as nominal line voltage. See Appendix B to Division 2/RR for a discussion of transient overvoltages on electric power transmission and distribution systems. See IEEE Std 516-2009, IEEE Guide for Maintenance Methods on Energized Power Lines, for methods of determining the magnitude of transient overvoltages on an electrical system and for a discussion comparing the ability of insulation equipment to withstand a transient overvoltage based on its ability to withstand ac voltage testing.

(2) Equipment current.

(i) Protective equipment used for the primary insulation of employees from energized circuit parts shall be capable of passing a current test when subjected to the highest nominal voltage on which the equipment is to be used.

(ii) When insulating equipment is tested in accordance with paragraph (b)(2)(i) of this section, the equipment current may not exceed 1 microampere per kilovolt of phase-to-phase applied voltage.

Note 1 to paragraph (b)(2): This paragraph applies to equipment that provides primary insulation of employees from energized parts. It does not apply to equipment used for secondary insulation or equipment used for brush contact only.

Note 2 to paragraph (b)(2): For ac excitation, this current consists of three components: Capacitive current because of the dielectric properties of the insulating material itself, conduction current through the volume of the insulating equipment, and leakage current along the surface of the tool or equipment. The conduction current is normally negligible. For clean, dry insulating equipment, the leakage current is small, and the capacitive current predominates.

Note to paragraph (b): Plastic guard equipment is deemed to conform to the performance requirements of paragraph (b) of this section if it meets, and is used in accordance with, ASTM F712-06 (2011), Standard Test Methods and Specifications for Electrically Insulating Plastic Guard Equipment for Protection of Workers.

(c) In-service care and use of electrical protective equipment.

(1) General. Electrical protective equipment shall be maintained in a safe, reliable condition.

(2) Specific requirements. The following specific requirements apply to rubber insulating blankets, rubber insulating covers, rubber insulating line hose, rubber insulating gloves, and rubber insulating sleeves:

- (i) Maximum use voltages shall conform to those listed in Table E-4.
- (ii) Insulating equipment shall be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of causing damage. Insulating gloves shall be given an air test, along with the inspection.

Note to paragraph (c)(2)(ii): ASTM F1236-96 (2012), Standard Guide for Visual Inspection of Electrical Protective Rubber Products, presents methods and techniques for the visual inspection of electrical protective equipment made of rubber. This guide also contains descriptions and photographs of irregularities that can be found in this equipment.

- (iii) Insulating equipment with any of the following defects may not be used:
 - (A) A hole, tear, puncture, or cut;
 - (B) Ozone cutting or ozone checking (that is, a series of interlacing cracks produced by ozone on rubber under mechanical stress);
 - (C) An embedded foreign object;
 - (D) Any of the following texture changes: Swelling, softening, hardening, or becoming sticky or inelastic.
 - (E) Any other defect that damages the insulating properties.
- (iv) Insulating equipment found to have other defects that might affect its insulating properties shall be removed from service and returned for testing under paragraphs (c)(2)(viii) and (c)(2)(ix) of this section.
- (v) Insulating equipment shall be cleaned as needed to remove foreign substances.
- (vi) Insulating equipment shall be stored in such a location and in such a manner as to protect it from light, temperature extremes, excessive humidity, ozone, and other damaging substances and conditions.
- (vii) Protector gloves shall be worn over insulating gloves, except as follows:

- (A) Protector gloves need not be used with Class 0 gloves, under limited-use conditions, when small equipment and parts manipulation necessitate unusually high finger dexterity.

Note to paragraph (c)(2)(vii)(A): Persons inspecting rubber insulating gloves used under these conditions need to take extra care in visually examining them. Employees using rubber insulating gloves under these conditions need to take extra care to avoid handling sharp objects.

- (B) If the voltage does not exceed 250 volts, ac, or 375 volts, dc, protector gloves need not be used with Class 00 gloves, under limited-use conditions, when small equipment and parts manipulation necessitate unusually high finger dexterity.

Note to paragraph (c)(2)(vii)(B): Persons inspecting rubber insulating gloves used under these conditions need to take extra care in visually examining them. Employees using rubber insulating gloves under these conditions need to take extra care to avoid handling sharp objects.

- (C) Any other class of glove may be used without protector gloves, under limited-use conditions, when small equipment and parts manipulation necessitate unusually high finger dexterity but only if the employer can demonstrate that the possibility of physical damage to the gloves is small and if the class of glove is one class higher than that required for the voltage involved.

- (D) Insulating gloves that have been used without protector gloves may not be reused until they have been tested under the provisions of paragraphs (c)(2)(viii) and (c)(2)(ix) of this section.

(viii) Electrical protective equipment shall be subjected to periodic electrical tests. Test voltages and the maximum intervals between tests shall be in accordance with Table E-4 and Table E-5.

(ix) The test method used under paragraphs (c)(2)(viii) and (c)(2)(xi) of this section shall reliably indicate whether the insulating equipment can withstand the voltages involved.

Note to paragraph (c)(2)(ix): Standard electrical test methods considered as meeting this paragraph are given in the following national consensus standards:

ASTM D120-09, Standard Specification for Rubber Insulating Gloves.

ASTM D178-01 (2010), Standard Specification for Rubber Insulating Matting.

ASTM D1048-12, Standard Specification for Rubber Insulating Blankets.

ASTM D1049-98 (2010), Standard Specification for Rubber Insulating Covers.

ASTM D1050-05 (2011), Standard Specification for Rubber Insulating Line Hose.

ASTM D1051-08, Standard Specification for Rubber Insulating Sleeves.

ASTM F478-09, Standard Specification for In-Service Care of Insulating Line Hose and covers

ASTM F479-06 (2011), Standard Specification for In-Service Care of Insulating Blankets.

ASTM F496-08, Standard Specification for In-Service Care of Insulating Gloves and sleeves.

- (x) Insulating equipment failing to pass inspections or electrical tests may not be used by employees, except as follows:
 - (A) Rubber insulating line hose may be used in shorter lengths with the defective portion cut off.
 - (B) Rubber insulating blankets may be salvaged by severing the defective area from the undamaged portion of the blanket. The resulting undamaged area may not be smaller than 560 millimeters by 560 millimeters (22 inches by 22 inches) for Class 1, 2, 3, and 4 blankets.
 - (C) Rubber insulating blankets may be repaired using a compatible patch that results in physical and electrical properties equal to those of the blanket.
 - (D) Rubber insulating gloves and sleeves with minor physical defects, such as small cuts, tears, or punctures, may be repaired by the application of a compatible patch. Also, rubber insulating gloves and sleeves with minor surface blemishes may be repaired with a compatible liquid compound. The repaired area shall have electrical and physical properties equal to those of the surrounding material. Repairs to gloves are permitted only in the area between the wrist and the reinforced edge of the opening.
- (xi) Repaired insulating equipment shall be retested before it may be used by employees.

- (xii) The employer shall certify that equipment has been tested in accordance with the requirements of paragraphs (c)(2)(iv), (c)(2)(vii)(D), (c)(2)(viii), (c)(2)(ix), and (c)(2)(xi) of this section. The certification shall identify the equipment that passed the test and the date it was tested and shall be made available upon request to the Assistant Secretary for Occupational Safety and Health and to employees or their authorized representatives.

Note to paragraph (c)(2)(xii): Marking equipment with, and entering onto logs, the results of the tests and the dates of testing are two acceptable means of meeting the certification requirement.

Table 1 - AC Proof-Test Requirements

Class of equipment	Proof-test voltage rms V	Maximum proof-test current, mA (gloves only)			
		280-mm (11-in) glove	360-mm (14-in) glove	410-mm (16-in) glove	460-mm (18-in) glove
00	2,500	8	12		
0	5,000	8	12	14	16
1	10,000		14	16	18
2	20,000		16	18	20
3	30,000		18	20	22
4	40,000			22	24

Table 2 - DC Proof Test Requirements

Class of equipment	Proof-test voltage
00	10,000
0	20,000
1	40,000
2	50,000
3	60,000
4	70,000

Note: The dc voltages listed in this table are not appropriate for proof testing rubber insulating line hose or covers. For this equipment, dc proof tests shall use a voltage high enough to indicate that the equipment can be safely used at the voltages listed in Table E-4. See ASTM D1050-05 (2011) and ASTM D1049-98 (2010) for further information on proof tests for rubber insulating line hose and covers, respectively.

Table 3 - Glove Tests-Water Level ^{1 2}

Class of glove	AC proof test		DC proof test	
	mm	in	mm	in
00	38	1.5	38	1.5
0	38	1.5	38	1.5
1	38	1.5	51	2.0
2	64	2.5	76	3.0
3	89	3.5	102	4.0
4	127	5.0	153	6.0

Table 4 - Rubber Insulating Equipment, Voltage Requirements

Class of equipment	Maximum use voltage ³ AC rms	Retest voltage ⁴ AC rms	Retest voltage ² DC avg
00	500	2,500	10,000
0	1,000	5,000	20,000
1	7,500	10,000	40,000
2	17,000	20,000	50,000
3	26,500	30,000	60,000
4	36,000	40,000	70,000

¹ The water level is given as the clearance from the reinforced edge of the glove to the water line, with a tolerance of ± 13 mm. (± 0.5 in.).

² If atmospheric conditions make the specified clearances impractical, the clearances may be increased by a maximum of 25 mm. (1 in.).

³ The maximum use voltage is the ac voltage (rms) classification of the protective equipment that designates the maximum nominal design voltage of the energized system that may be safely worked. The nominal design voltage is equal to the phase-to-phase voltage on multiphase circuits. However, the phase-to-ground potential is considered to be the nominal design voltage if:

- (1) There is no multiphase exposure in a system area and the voltage exposure is limited to the phase-to-ground potential, or
- (2) The electric equipment and devices are insulated or isolated or both so that the multiphase exposure on a grounded wye circuit is removed.

⁴ The proof-test voltage shall be applied continuously for at least 1 minute, but no more than 3 minutes.

Table 5 - Rubber Insulating Equipment Test Intervals

Type of equipment	When to test
Rubber insulating line hose	Upon indication that insulating value is suspect and after repair.
Rubber insulating covers	Upon indication that insulating value is suspect and after repair.
Rubber insulating blankets	Before first issue and every 12 months thereafter; ¹ upon indication that insulating value is suspect; and after repair.
Rubber insulating gloves	Before first issue and every 6 months thereafter; ¹ upon indication that insulating value is suspect; after repair; and after use without protectors.
Rubber insulating sleeves	Before first issue and every 12 months thereafter; ¹ upon indication that insulating value is suspect; and after repair.

Stat. Auth.: ORS 654.025(2) and 656.726(4)
 Stats. Implemented: ORS 654.001 through 654.295.
 Hist.: OR-OSHA Admin. Order 3-2015, f. 10/9/15, ef. 1/1/16.

¹ If the insulating equipment has been electrically tested but not issued for service, the insulating equipment may not be placed into service unless it has been electrically tested within the previous 12 months.

1926.103 Respiratory Protection

Note: The requirements applicable to construction work under this section are identical to those in 29 CFR 1910.134, located in Oregon OSHA's standards in Division 2/I, Personal Protective Equipment.

1926.106 Working Over or Near Water

- (a) Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jacket or buoyant work vests.
- (b) Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used.
- (c) Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet.
- (d) At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: APD Admin. Order 8-1989, f. 7/7/89, ef. 7/7/89.

1926.107 Definitions Applicable to this Subdivision

- (a) Contaminant means any material which by reason of its action upon, within, or to a person is likely to cause physical harm.
- (b) O.D. means optical density and refers to the light refractive characteristics of a lens.
- (c) Radiant energy means energy that travels outward in all directions from its sources.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: APD Admin. Order 8-1989, f. 7/7/89, ef. 7/7/89.
OR-OSHA Admin. Order 6-1995, f. 4/18/95, ef. 6/1/95.

Notes

Historical Notes for Subdivision E

Note: In November 2014, Oregon OSHA proposed to adopt Federal OSHA final rules for Electric Power Generation, Transmission, and Distribution, that were published in the April 11, 2014 Federal Register. The proposal included Oregon-initiated changes to the federal rule. Three public hearings were held during November and December of 2014 resulting in several written comments and oral testimony before the comment period closed on December 12, 2014. Most of the comments received concerned the two worker rule exceptions. As a result of the comments received, Oregon OSHA decided not to adopt the rule as proposed in 2014, but to consider an alternative approach.

Two stakeholder meetings were conducted in the first half of 2015 to discuss comments along with potential changes to the 2014 proposal. Oregon OSHA received input and support from stakeholders to combine the Electric Power Generation, Transmission, and Distribution standards in Divisions 2/R and 3/V into one rule. Oregon OSHA merged 1910.269, in Division 2/R General Industry, and Division 3/V in Construction, standards into the new Division 2/RR. Unifying language and Oregon-unique rules for Power Generation, Transmission and Distribution for General Industry and Construction were incorporated into one standard.

In July, 2015 Oregon OSHA reposed rules for Electric Power Generation, Transmission, and Distribution. Three public hearings were held during August and September 2015. Most of the oral and written comments received concerned: the duties of a Safety Watch, the exception to the two-worker rule, and helicopters. Changes to the final rule include:

Safety Watch: Safety Watch text was added to the final rule 437-002-2311(13).

Operating switches: 437-002-2311(2)(b)(B) was changed to clarify that 437-002-2311(2)(b)(E) must be followed for routine switching of load break elbows.

Helicopters: Paragraphs were removed which were already addressed by, or were in conflict with, other regulatory agencies; or were unnecessarily restrictive based upon accepted industry practices.

On October 5, 2015 Federal OSHA published in the Federal Register, minor language clarifications in rules related to Line Clearance Tree Trimming as well as correcting errors in Table R-6 (Alternative Minimum Approach Distances.) The note for enclosed spaces was removed from Appendix A-3 and placed in Appendix A-5. These corrections have been incorporated in Oregon OSHA's final rules.

This is Oregon OSHA Administrative Order 3-2015, adopted October 9, 2015, and effective January 1, 2016.

Note: In November of 2015, Oregon OSHA proposed to revise the general fall protection requirements covered under Division 3 (Construction Industry), Subdivisions 3/M (Fall Protection) and 3/E (Personal Protective and Life Saving Equipment), as requested by federal OSHA. Federal OSHA's request was not based on data related to enforcement, but on the effectiveness of the rule itself, presuming it is followed. The proposed revisions to Subdivision 3/M and Subdivision 3/E, includes amending the 10-foot general trigger height for fall protection to 6 feet, and

repealing 437-003-0134(5)(a), which has a 10-foot general fall protection trigger height requirement, due to redundancy.

Five public hearings were held during January of 2016. Oregon OSHA received oral testimony in addition to written comments. Several comments received opposed lowering the 10-foot general trigger height for fall protection to 6 feet. Reasons for the opposing comments included, but were not limited to; the belief that the hazard associated with a 6-foot fall is not an "extreme difference" than that of a 10-foot fall; employers' difficulty of ensuring employees follow company policy to use personal fall protection systems; additional costs incurred by employers and homeowners for increase use of fall protection systems, in lieu of slide guards; lack of data that supports the need to lower the current 10-foot trigger height.

Oregon OSHA considered all comments received. However, since federal OSHA's request was not based on data related to enforcement, but rather on the literal effectiveness of the rule itself, presuming it is followed, Oregon OSHA must comply with federal OSHA's request.

This is Oregon OSHA Administrative Order 1-2016, adopted March 1, 2016, and effective January 1, 2017.

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