



Oregon Administrative Rules
Chapter 437

Division 2

General Occupational Safety and Health

Special Industries

Subdivision

R

Administrative
Order 6-2017



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>002</i>	<i>0322</i>	<i>(1)</i>	<i>(a)</i>	<i>(A)(i)(1)</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	002	1910	R	.303	(a)(1)(i)(A)(1)

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
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, Oregon State Archives Building, Salem, Oregon, or the Central Office, Oregon Occupational Safety and Health Division of the Department of Consumer and Business Services, 350 Winter St. NE, Salem, Oregon, and on our web site at osha.oregon.gov.

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Note: In Oregon, the Electric Power Generation, Transmission, and Distribution Standard is located in Division 2/RR.

437-002-0300 Adoption by Reference

In addition to and not in lieu of, any other health and safety codes contained in OAR Chapter 437, the Department adopts by reference the following federal regulations printed as part of the Code of Federal Regulations, 29 CFR 1910, in the Federal Register:

- (1) Reserved for 29 CFR 1910.261 Pulp, Paper, and Paperboard Mills
- (2) 29 CFR 1910.262 Textiles, published 11/18/16, FR Vol. 81, no. 223, p. 82494.
- (3) 29 CFR 1910.263 Bakery Equipment, published 3/7/96, FR vol. 61, no. 46, p. 9241.
- (4) 29 CFR 1910.264 Laundry Machinery and Operations, published 11/7/78, FR vol. 43, p. 51760.
- (5) 29 CFR 1910.265 Sawmills, published 11/18/16, FR Vol. 81, no. 223, p. 82494.
- (6) Reserved for 29 CFR 1910.266 Pulpwood Logging. (**Note:** In Oregon, Pulpwood Logging rules are Oregon-initiated rules provided in Division 7, Forest Activities.)
- (7) Reserved for 29 CFR 1910.267 Agricultural Operations. (**Note:** In Oregon, Division 4, Agriculture applies.)
- (8) 29 CFR 1910.268 Telecommunications, published 11/18/16, FR Vol. 81, no. 223, p. 82494.
- (9) 29 CFR 1910.269 Electric power generation, transmission and distribution. Repealed with Oregon OSHA Admin. Order 3-2015, f. 10/9/15. Ef. 1/1/16. In Oregon, Division 2/RR applies.
- (10) 29 CFR 1910.272 Grain Handling Facilities, and Appendices A, B and C, published 12/27/11, FR vol. 76, no. 248, p. 80735.
- (11) 29 CFR 1910.274 Removed. Published 3/7/96, Federal Register, vol. 61, no. 46, p. 9242.
- (12) 29 CFR 1910.275 Removed. Published 3/7/96, Federal Register, vol. 61, no. 46, p. 9242.

These standards are available from the Oregon Occupational Safety and Health Division (OR-OSHA), 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 10-1988, f. 7/7/88, ef. 7/7/88 (Grain Handling).
OR-OSHA Admin. Order 23-1990, f. 9/28/90, ef. 12/1/90 (Grain Handling).
OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91 (Tree and Shrub Services).
OR-OSHA Admin. Order 14-1991, f. 10/10/91, ef. 11/1/91 (Textiles, Bakeries, Laundries).
OR-OSHA Admin. Order 7-1993, f. 6/8/93, ef. 8/1/93 (Sawmills).
OR-OSHA Admin. Order 11-1993, f. 8/4/93, ef. 10/1/93 (Telecommunications).
OR-OSHA Admin. Order 3-1994, f. 8/1/94, ef. 8/1/94.
OR-OSHA Admin. Order 3-1996, f. 7/22/96, ef. 7/22/96 (Grain Handling Facilities).
OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.
OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98.
OR-OSHA Admin. Order 3-1999, f. 4/30/99, ef. 4/30/99 (Telecommunications).
OR-OSHA Admin. Order 4-1999, f. 4/30/99, ef. 4/30/99.
OR-OSHA Admin. Order 5-2001, f. 4/6/01, ef. 4/6/01 (Elec. Power Gen., Trans. & Dist.).
OR-OSHA Admin. Order 4-2004, f. 9/15/04, ef. 9/15/04.
OR-OSHA Admin. Order 4-2005, f. 12/14/05, ef. 12/14/05.
OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.
OR-OSHA Admin. Order 6-2012, f. 9/28/12, ef. 4/1/13.
OR-OSHA Admin. Order 3-2015, f. 10/9/15, ef. 1/1/16.
OR-OSHA Admin. Order 2-2017, f. 5/16/17, ef. 11/1/17.
OR-OSHA Admin. Order 6-2017, f. 9/5/17, ef. 11/1/17.

Oregon Rules for Tree and Shrub Services

437-002-0301 *Scope and Application*

- (1) These rules set minimum safety requirements for tree and shrub trimming, pruning, bracing, removal, and surgery. These rules shall apply to all tree and shrub services.*
- (2) These rules do not apply to agricultural crops or crop services, or to tree trimming operations within 10 feet of any high voltage (600 v) power lines or equipment. Tree trimming operations around power lines are covered under Division 2/RR.*
- (3) If a specific type of equipment, process or practice is not limited to the tree and shrub service industry, the provisions contained in other divisions of OAR 437, Oregon Occupational Safety and Health Code, shall apply.*

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.
OR-OSHA Admin. Order 3-1994, f. 8/1/94, ef. 8/1/94.
OR-OSHA Admin. Order 1-1996, f. 2/16/96, ef. 2/16/96.
OR-OSHA Admin. Order 3-2015, f. 10/9/15, ef. 1/1/16.

437-002-0302 *Definitions*

Qualified tree worker – A worker who through related training and on-the-job experience is familiar with the techniques and hazards of tree pruning, trimming, repairing, or removal, and the equipment used in such operations.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.
OR-OSHA Admin. Order 1-1996, f. 2/16/96, ef. 2/16/96.

437-002-0303 *Training And Work Planning*

Employers shall instruct their employees in the proper use of all equipment provided for them and shall require that safe working practices be observed. A job safety briefing with all crew members shall be held and all work procedures and assignments shall be worked out carefully before any tree job is begun.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.
OR-OSHA Admin. Order 1-1996, f. 2/16/96, ef. 2/16/96.

437-002-0304 First Aid Requirements

- (1) First aid care and supplies shall be provided as required by OAR 437-002-0161, in Division 2/K, Medical Services and First Aid.*
- (2) Personnel shall be able to render cardiopulmonary resuscitation (CPR); and*
- (3) Be trained in tree top rescue.*

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.

437-002-0305 Traffic Control

Effective means for control of pedestrian and vehicular traffic shall be instituted on every job site on or adjacent to a highway, street or railway. Traffic controls shall conform to the American National Standards Institute (ANSI) D6.1e-1989, Manual on Uniform Traffic Control Devices for Streets and Highways.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.

437-002-0306 Electrical Hazards

- (1) General. The employer shall ensure that a close inspection is made by the employee and by the foreman or supervisor in charge before climbing, entering or working around any tree, to determine whether an electrical power conductor passes through the tree, or passes within reaching distance of an employee working in the tree. If any of these conditions exist either directly or indirectly, an electrical hazard shall be considered to exist unless the system operator/owner has caused the hazard to be removed by deenergizing the lines, or installing protective equipment.*
- (2) Unqualified persons. When an unqualified person is working near overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:*
 - (a) For voltages to ground 50 kV or below – 10 feet (305 cm);*
 - (b) For voltages to ground over 50 kV – 10 feet (305 cm) plus 4 inches (10 cm) for every 10 kV over 50 kV.*

- (3) *Electrical Safety-Related Work Practices. The employer shall assure that 29 CFR 1910.331 through 1910.335, Electrical Safety-Related Work Practices, in Division 2/S, are complied with for all electrical hazards, EXCEPT as provided for in 29 CFR 1910.331(c).*
- (4) *Notification to Power Company. The power company shall be notified when working within 10 feet of a power line or when a tree may fall within 10 feet of a power line.*

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.
OR-OSHA Admin. Order 1-1996, f. 2/16/96, ef. 2/16/96.

437-002-0307 *Personal Protective Equipment*

- (1) *Personal protective equipment shall be provided and used as required by OAR 437, Division 2/I, Personal Protective Equipment.*
- (2) *Safety belts or tree-trimming saddle belts shall conform to ANSI A10.14-1975, Requirements for Safety Belts, Harnesses, Lanyards, Lifelines, and Drop Lines for Construction and Industrial Use. Safety belts, tree trimming saddles, or a saddle formed by a double bowline shall be worn to protect workers when working aloft.*
- (3) *Saddle belts or safety belts used for climbing operations shall have forged support rings. Snaps used in climbing ropes or in safety straps, for attachment to the forged support ring, shall be of a self-closing safety type. Forged support rings shall be designed so that the snaps will not become disengaged (roll off) accidentally.*
- (4) *Saddle belts or safety belts shall not be spliced or weakened by punching extra holes in them.*
- (5) *All employees using chain saws shall wear flexible ballistic nylon pads or other equivalent protection sewn or otherwise fastened to the trousers, which will protect the legs from the thigh to below the knee.*
- (6) *Eye or face protection shall be provided and used where chips, sawdust or flying particles present a hazard.*
- (7) *When operating chain saws or other noisy equipment, employees must wear hearing protection that complies with Division 2/G, Occupational Noise Exposure.*

- (a) The employer must provide hearing protection at no cost to employees and must allow them to choose from a variety of suitable devices.*
- (b) The employer must train the employees in the proper use and care of the hearing protection.*
- (c) The employer must assure that the workers use the hearing protection properly and that it fits correctly.*

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.
OR-OSHA Admin. Order 1-1996, f. 2/16/96, ef. 2/16/96.
OR-OSHA Admin. Order 12-2001, f. 10/26/01, ef. 10/26/01.

437-002-0308 Portable Power Tools

(1) Electric tools. All portable electric hand tools shall:

- (a) Be equipped with three-wire cord having the ground wire permanently connected to the tool frame and means for grounding the other end; or*
- (b) Be of the double insulated type and permanently labeled as "Double Insulated."*
- (c) Extension cords shall be maintained in safe condition. Exposed metal sockets shall not be used.*
- (d) Tool operators shall:*
 - (A) Use electric hand tools in accordance with the manufacturer's instructions;*
 - (B) Prevent cords from becoming entangled, damaged, or cut by blades and bits;*
 - (C) Avoid laying extension cord in water;*
 - (D) Support an electrical tool and its power supply cord by a line, independent of the worker when the tool is used aloft.*

(2) Gasoline-Driven Power Saws.

- (a) Power saws shall not be used when employees are supported by a single climbing belt or rope.*

- (b) When working aloft using power saws, employees shall be supported by their climbing belt or rope and by a safety line to a crotch in the tree higher than the climber's waistline. The safety line shall be secured to a separate point on the climber's body belt and kept snug at all times.*
- (c) The manufacturer's operating and safety instructions shall be followed unless modified by this rule.*
- (d) Power saws weighing more than 15 pounds (service weight) used in trees shall be supported by a separate line, except when used from an aerial-lift device.*
- (e) Where there are no lateral branches on which to crotch a separate line for power saws weighing over 15 pounds, a false crotch shall be used. A false crotch is one that can hold power-saw lines without slipping or coming untied.*
- (f) The operator shall have secure footing when starting the saw. Power saws weighing less than 15 pounds (service weight) may be drop started. Drop starting of saws over 15 pounds is permitted outside of the basket of an aerial lift only after ensuring that the area below the aerial lift is clear of personnel.*
- (g) The engine shall be started and operated only when all other workers are clear of the saw.*
- (h) The engine shall be stopped when power saws are being carried. The saw need not be stopped between cuts during consecutive felling, bucking, or limbing or cutting operations on reasonably level ground. The chain shall not be turning and the operator's hand shall be off the throttle lever while moving between work locations. Single person saws shall be carried by the worker on his/her side with the guide bar of the saw pointed to the rear.*
- (i) The engine shall be stopped for all cleaning, refueling, adjustments, and repairs to the motor.*
- (j) The saw muffler shall be maintained in good condition.*
- (k) The saw shall be clean of sawdust and flammable material.*
- (l) Power chain saws shall be equipped with an automatic throttle control which will return the engine to idling speed upon release of the throttle. "Idling" is when the chain is not moving while the engine is running.*
- (m) Power saws shall meet all applicable requirements of ANSI B175.1-1985, Safety Requirements for Gasoline-Powered Chain Saws.*

(3) Backpack power units.

- (a) The manufacturer's operating safety instructions shall be followed unless modified by these rules.*
- (b) No one except the operator shall be within ten feet of the cutting head of a brush saw.*
- (c) The power unit shall be equipped with a quick shutoff switch readily accessible to the operator.*
- (d) The operator shall observe the position of all personnel while the unit is running.*
- (e) The engine shall be stopped for all cleaning, refueling, adjustments, and repair to the saw or motor where practical, except where manufacturer's procedures require otherwise.*

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.

437-002-0309 Hand Tools

(1) General.

- (a) The correct tool shall be selected for the job.*
- (b) Tools that have been made unsafe by damage or defect shall not be used.*
- (c) When climbing a tree, workers shall not carry tools in their hands other than tools that are used to assist them in climbing.*
- (d) Workers shall maintain a safe working distance from other workers when using hand tools.*
- (e) Tools shall be properly stored or placed in plain sight out of the immediate work area when not in use.*
- (f) Workers shall not throw or drop tools from trees unless warning has been given and the ground area is clear, and the act of dropping will not endanger personnel.*

(2) Pruners and hand saws.

- (a) Pole pruners, pole saws, and other similar tools shall be equipped with wood or nonmetallic poles. Actuating cord shall be of nonconducting material.*

- (b) When inserting a blade in a bow-saw frame, workers shall keep their hands and fingers in the clear when the tension lever snaps into or against the saw frame. When removing a bow-saw blade from the frame, the operator shall stay clear of the blade.*
- (3) Chopping tools – axes, brush hooks, machetes, and others.*
- (a) Chopping tools that have loose or cracked heads or splintered handles shall not be used.*
- (b) Chopping tools shall never be used while working aloft.*
- (c) Chopping tools shall be swung away from the feet, legs, and body, using the minimum power practical for control.*
- (d) Chopping tools shall not be driven as wedges or used to drive metal wedges unless specifically designed to be driven or to be used to drive wedges.*
- (4) Injector tools for applying herbicides.*
- (a) The bit of injector tools shall be covered with a shield when not in use.*
- (b) Injectors shall be laid flat on the ground when not in use.*
- (c) The injector shall not be carried on the shoulders but shall be carried by the loop handle on the downhill side, with the bit properly shielded and facing to the rear.*
- (5) Grub hoes, mattocks and picks.*
- (a) The blade eye shall be tight-fitting and wedged so that it cannot slide down the handle.*
- (b) When swinging grub hoes, mattocks, and picks, the worker shall have a secure grip and firm footing.*
- (6) Cant hooks, cant dogs, tongs, and carrying bars.*
- (a) Hooks shall be firmly set before applying pressure.*
- (b) Tools with cracked, splintered, or weakened handles shall not be used.*
- (c) Workers shall be warned and shall be in the clear before logs are moved.*
- (d) The points of hooks shall be at least 2 inches long and kept sharp.*
- (e) Workers shall stand to the rear and uphill when rolling logs.*
- (7) Wedges, chisels, and gouges.*

- (a) Wedges, chisels, and gouges shall be inspected for cracks and flaws before use.*
 - (b) Wedges and chisels shall be properly pointed and tempered. Tools with mushroomed heads shall not be used.*
 - (c) Only wood, plastic, or soft-metal wedges shall be used with power saws.*
 - (d) Wood-handled chisels shall be protected with a ferrule on the striking end.*
- (8) Hammers, mauls, and sledges. Wood, rubber or high-impact plastic mauls, sledges, or hammers shall be used when striking wood-handled chisels or gouges.*
- (9) Ropes.*
- (a) Climbing ropes shall be used when working aloft in trees. Climbing ropes shall have a minimum diameter of 1/2-inch and be a 3- or 4-strand first-grade manila with a nominal breaking strength of 2385 pounds or its equivalent in strength and durability. Synthetic rope shall have a maximum elasticity of not more than 7 percent.*
 - (b) Rope made unsafe by damage or defect, or for any other reason, shall not be used.*
 - (c) Rope shall be stored away from all cutting edges and sharp tools. Corrosive chemicals, gas, and oil shall be kept away from rope.*
 - (d) Climbing ropes and safety lines shall not be used to lower limbs or other parts of trees or to raise or lower equipment.*
 - (e) When stored, rope shall be coiled and piled, or suspended, so that air can circulate through the coils.*
 - (f) Rope ends shall be secured to prevent unraveling.*
 - (g) Climbing and safety rope shall not be spliced to effect repair.*
 - (h) Safety snaps shall be rotated from one end of the rope to the other, as needed, and the worn end cut off.*
 - (i) A handline shall be used for raising or lowering tools and limbs.*
- (10) Tackle blocks and pulleys. Tackle blocks and pulleys shall be inspected immediately before use and shall be condemned if defective, in accordance with procedures given in ANSI/ASME B30.9-1984, B30.9a-1985, and B30.9b-1987, Safety Standard for Slings.*

(11) Ladders.

- (a) When using portable ladders to climb trees, the ladder shall be tied to the tree or supported by another worker. When working from a ladder during cutting operations, the ladder shall be securely tied or braced, and the worker tied in as required by OAR 437-002-0310(1)(a)(A).*
- (b) Ladders, platforms, and aerial devices, including insulated aerial devices, shall not be placed in a position where they could contact an electrical conductor. Reliance shall not be placed on their dielectric capabilities.*
- (c) Ladders made of metal or other conductive material shall not be used where an electrical hazard exists. Only approved wood ladders (constructed in accordance with ANSI A14.1-1982, Safety Requirements for Portable Wood Ladders, or nonconductive ladders made of synthetic material equal to or exceeding the strength of approved wood ladders, shall be used.*
- (d) Metal ladders used where no electrical hazard exists shall conform to ANSI A14.2-1982, Safety Requirements for Portable Metal Ladders.*
- (e) All ladders shall be inspected daily before use. Unsafe ladders shall not be used.*
- (f) The attaching of cleats, metal points, and safety feet; lashing; or other effective means of securing the ladder shall be used if there is danger of its slipping.*
- (g) Ladders shall be supported while in storage so they will not sag. Except when on mobile equipment, ladders shall be stored under suitable cover, protected from the weather, and kept in a dry location away from excessive heat.*
- (h) Ladders shall not be used as bridges or inclined planes to load or handle logs or other material.*

(12) Climbing spurs. Climbing spurs shall be of the tree-climbing type and have gaffs suitable for the tree being climbed.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.
OR-OSHA Admin. Order 1-1996, f. 2/16/96, ef. 2/16/96.
OR-OSHA Admin. Order 2-2017, f. 5/16/176, ef. 11/1/17.

437-002-0310 Work Procedures**(1) Climbing.**

- (a) A tree worker shall be tied in with an approved type of climbing rope and safety saddle when working 4 feet above the ground. A safety strap or rope with snaps may be used for additional protection.*
 - (A) When working from a ladder more than 10 feet above the adjacent ground line, the worker must be tied in with an approved type of climbing rope and safety saddle.*
 - (B) When working from a scaffold more than 10 feet above the adjacent ground line, and an exposure to a fall hazard exists, the employee shall be tied in with the climbing rope and safety saddle.*
- (b) Limbs shall be inspected, while climbing, before applying weight. The climber shall not trust the capability of a dead branch to support his/her weight. Dead branches shall be broken off on the way up, if possible. Hands and feet shall be placed on separate limbs, if possible.*
- (c) The climbing rope shall be passed around the trunk of the tree as high as possible using branches with a wide crotch to prevent any binding of the safety rope. The crotch selected for tying in shall be over the work area as much as possible, but located in such a way that a slip or fall would swing the worker away from any electrical conductor. The rope shall also be passed around the main leader or an upright branch, using the limb as a stop. Feet, hands, and ropes shall be kept out of tight V-shaped crotches.*
- (d) The location of all electrical conductors shall be noted in relation to work procedures. The worker shall climb on the side of the tree that is away from electrical conductors, if possible.*
- (e) A figure-eight knot shall be tied in the end of the rope, particularly in the case of high trees. This will prevent pulling the rope accidentally through the taut line-hitch and possible serious injury from a fall.*
- (f) The climbing line shall be crotched as soon as practical after the worker is aloft, and a taut line-hitch tied and checked.*
- (g) The worker shall be completely secured with the climbing line before starting operations.*

(h) The worker shall remain tied in until the work is completed and the worker has returned to the ground. If it is necessary to recrotch the rope in the tree, the worker shall retie the rope or use the safety strap before releasing the previous tie.

(2) Pruning and Trimming.

- (a) Pole pruners and pole saws shall be hung securely in a vertical position to prevent dislodging. Pole pruners or pole saws shall not be hung on utility wires or cables, or left in the tree overnight. Pole saws shall be hung so that the sharp edge is away from the worker.*
- (b) A scabbard or sheath shall be hooked to the belt or safety saddle to carry the handsaw when not in use.*
- (c) Warnings, when necessary, shall be given by the worker in the tree before a limb is dropped.*
- (d) A separate line shall be attached to limbs which cannot be dropped or are too heavy to be controlled by hand. The line shall be held by workers on the ground end of the rope. Use of the same crotch for both safety rope and work rope shall be avoided.*
- (e) Cut branches shall not be left in trees overnight.*
- (f) A climbing rope shall never be left in a tree overnight. A service line shall be put up for overnight or longer.*
- (g) The climber shall inspect the rope for cuts or abrasions before starting work. If any cuts or serious abrasions are found, the rope shall be discarded, used for some other purpose, or the defective section cut off.*
- (h) During all tree working operations aloft, there shall be a second worker in the vicinity. This shall not apply to utility workers engaged in tree trimming incidental to their normal occupation, or to one-man service crews.*

(3) Cabling.

- (a) In cabling operations, branches which are to be cabled shall be brought together to the proper distance by means of a block and tackle, a hand winch, a rope, or a rope with a come-along.*
- (b) Not more than two persons shall be in the tree working at opposite ends during cabling installation.*

- (c) When releasing the block and tackle, workers in trees shall be off to one side in case the lag hooks pull out under strain.*
- (d) Ground workers shall not stand under the tree when cable is being installed.*
- (e) Tools used for cabling, bark tracing, cavity work, etc., shall be carried in a bag or belt designed to hold tools, not put in the pocket or stuck in the top of a boot.*

(4) Topping

- (a) Workers doing topping shall make sure the trees are able to stand the strain of a topping procedure. If not, some other means of lowering the branches shall be provided, such as a tree crane.*
- (b) If large limbs are lowered in sections, the worker in the tree shall be above the limb being lowered.*
- (c) Guidelines, handlines, or tag lines shall be used when conditions warrant their use.*

(5) Felling

- (a) Before beginning any felling operation, a safety plan shall be developed which shall consider:
 - (A) The tree and the surrounding area for anything that may create a hazard when the tree falls;*
 - (B) The shape of the tree;*
 - (C) The lean of the tree;*
 - (D) Wind force and direction;*
 - (E) Decayed or other weak spots; and*
 - (F) The location of other persons or structures.**
- (b) The work area shall be cleared to permit safe working conditions, and an escape route shall be planned before any cutting is started.*
- (c) Each tree worker shall be instructed as to exactly what is to be done during the felling operation. All workers not directly involved shall be at least two tree lengths away from the tree being felled.*
- (d) A notch and backcut shall be used in felling trees over 5 inches diameter breast high. No tree shall be felled by "ripping" or "slicing" cuts.*

- (e) The depth or penetration of the notch shall be approximately one-third the diameter of the tree.*
 - (f) The opening or height of the notch shall be approximately 2-1/2 inches for each foot in diameter of the tree.*
 - (g) The backcut shall be made higher than the point or apex of the notch to prevent kickback.*
 - (h) Just before the tree is ready to fall, an audible warning shall be given to those in the area.*
 - (i) If there is danger that the tree being felled may fall the wrong way or damage property; wedges, block and tackle, rope, or wire cable (except where an electrical hazard exists) shall be used. All limbs shall be removed from trees to a height and width sufficient to allow the tree to fall clear of any wires and other objects in the vicinity.*
 - (j) Special precautions in roping rotten or split trees shall be taken to prevent the tree from falling in an unexpected direction even though the cut is made on the proper side.*
 - (k) The faller shall retreat to a safe location when a tree is committed to fall.*
- (6) Chipper equipment and operation.*

Equipment Design

- (a) Enclose chipper rotating components in a housing capable of retaining broken chipper knives or foreign material.*
- (b) Chipper feed chutes and side members must be designed to prevent operator contact with rotating blades during normal operation.*
- (c) Chippers without a mechanical infeed system must have:*
 - (A) An infeed hopper that measures at least 85 inches from the blades or knives to ground level at the centerline of the hopper.*
 - (B) A flexible antikickback device in the feed hopper. This device must protect the operator and other persons in the area from flying chips and debris.*
 - (C) A shut-off switch within convenient reach of the worker feeding the chipper.*

- (d) Chippers with a mechanical infeed system must have a quick stop reversing device on the infeed. The quick stop reversing device control lever must be across the top and along each side of the hopper, as close to the feed end of the hopper as practicable within easy reach of the operator.*

Worker Apparel

- (e) Employees in the immediate area of an operating chipper must wear personal protective equipment as required by Subdivision I of this Division.*
- (f) Workers feeding chippers must not wear loose clothing, gauntlet-type gloves, rings or watches.*

Work Practices

- (g) Prevent accidental restart of equipment shut down for adjustment or repair as required by Division 2/J, 1910.147, Lockout/Tagout.*
- (h) Guard exposed adjacent blades when replacing chipper blades.*
- (i) Close and secure all access panels before operating the chipper.*
- (j) The chipper operator must have a coworker in the immediate vicinity when feeding chipper.*
- (k) Do not feed foreign objects into chipper.*
- (l) Feed chippers from the side of the centerline. The operator must immediately turn away from the feed table as brush is drawn into the rotor. Feed chippers from curbside whenever practical.*
- (m) Feed and discharge chutes must be in place to prevent contact with rotating blades during chipper operation.*
- (n) Chipper operators must be familiar with the manufacturer's operating instructions, maintenance and safe work practices.*
- (o) When trailer chippers are detached from trucks they must be chocked or otherwise secured.*
- (p) Before towing chipper, cross safety chains under the tongue of the chipper and attach them to the towing vehicle.*
- (7) Limbing and bucking.*

- (a) The tree worker shall work on the side opposite the side on which the limb is being cut.*
 - (b) The tree worker shall stand on the uphill side of the work.*
 - (c) Branches bent under tension shall be considered hazardous.*
 - (d) The tree worker shall block the log to prevent rolling, when necessary.*
 - (e) When bucking up trunks of trees, wedges shall be used as necessary to prevent binding of the guide bar or chain.*
- (8) Storm work and emergency conditions.*
- (a) Since storm work and emergency conditions create special hazards, only authorized representatives of the electric utility system operator/owner may perform tree work in these situations where energized electrical power conductors are involved.*
 - (b) When an emergency condition develops due to tree operations, work shall be suspended and the system operator/owner shall be notified immediately.*

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.
OR-OSHA Admin. Order 5-2001, f. 4/6/01, ef. 4/6/01.
OR-OSHA Admin. Order 2-2017, f. 5/16/17, ef. 11/1/17.

437-002-0311 Mobile Equipment

- (1) All vehicles shall comply with OAR 437-002-0223 in Division 2/N, Material Handling and Storage.*
- (2) All aerial lifts shall comply with Division 2/F, 1910.67, Vehicle-Mounted Elevating and Rotating Work Platforms.*
- (3) When an aerial lift device contacts an electrical conductor, the truck supporting the aerial lift device shall be considered as energized.*
- (4) Sprayers and related equipment.*
 - (a) Working and walking surfaces of all sprayers and related equipment shall be covered with slip-resistant material.*
 - (b) Equipment on which workers stand and spray while the vehicle is in motion shall be equipped with guardrailing around the working area. The guardrailings shall be constructed in accordance with Division 2/D.*

(5) Stump cutters.

- (a) Stump cutters shall be equipped with enclosures or guards that effectively protect the operator.*
- (b) The operator and workers in the immediate area shall wear eye protection.*

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

Stats. Implemented: ORS 654.001 to 654.295.

Hist: OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.

OR-OSHA Admin. Order 2-2017, f. 5/16/17, ef. 11/1/17.

1910.261 Pulp, Paper and Paperboard Mills

Note: Instead of 1910.261, Pulp, Paper and Paperboard Mills, the following Oregon-initiated Rule, 437-002-0312 Oregon Rules for Pulp, Paper and Paperboard Mills, was adopted:

437-002-0312 Oregon Rules for Pulp, Paper and Paperboard Mills.

(1) General Requirements.

- (a) Application. This section applies to establishments where pulp, paper, and paperboard are manufactured or converted. This section does not apply to logging and the transportation of logs to pulp, paper, and paperboard mills.*
- (b) Standards incorporated by reference. Standards covering issues of occupational safety and health which have general application without regard to any specific industry are incorporated by reference in sections (2) through (14) of this rule and in subsections (c) and (d) of this rule and made applicable under this rule. Such standards shall be construed according to the rules set forth in 1910.5, Applicability of Standards, in Subdivision A.*
- (c) General incorporation of standards. Establishments subject to this section shall comply with the following standards of the American National Standards Institute:
 - (A) Safety Requirements for Floor and Wall Openings, Railings, and Toeboards, A10.18-1983.*
 - (B) Scheme for the Identification of Piping Systems, A13.1-1981 (R1993).*
 - (C) Safety Code for Portable Wood Ladders, A14.1-1990.*
 - (D) Safety Code for Portable Metal Ladders, A14.2-1990.*
 - (E) Safety Code for Fixed Ladders, A14.3-1990.*
 - (F) Safety Code for Cranes, Derricks, and Hoists, B30.2-1990.*
 - (G) Overhead and Gantry Cranes, B30.17-1992.*
 - (H) Crawler, Locomotive, and Truck Cranes, B30.8-1993.*
 - (I) Safety Code for Woodworking Machinery, ANSI O1.1-1992.*
 - (J) Method of Measurement of Real-Ear Protection of Hearing Protectors – Physical Attenuation of Ear Muffs, ANSI S3.19-1974 (R1990).**

- (K) Practice for Occupational and Educational Eye and Face Protection, ANSI Z87.1-1989.*
- (L) Requirements for Sanitation in Places of Employment, ANSI Z4.1-1986.*
- (M) Fundamentals Governing the Design and Operation of Local Exhaust Systems, Z9.2-1979 (R 1991).*
- (N) Practices for Respiratory Protection, ANSI Z88.2-1992.*
- (O) Safety Requirements for Industrial Head Protection, ANSI Z89.1-1986.*
- (P) Safety Color Code, ANSI Z535.1-1991.*
- (Q) Practice for the Inspection of Elevators (Inspector's Manual), ANSI/ASME A17.2-1988.*
- (R) Safety Code for Elevators, Dumbwaiters, and Moving Walks, ANSI/ASME A17.1-1990.*
- (S) Safety Code for Mechanical Power-Transmission Apparatus, ANSI/ASME B15.1-1992.*
- (T) Safety Code for Conveyors, Cableways, and Related Equipment, ANSI/ASME B20.1-1993.*
- (U) Power Piping, ANSI/ASME B31.1-1992.*
- (V) Safety Code for Powered Industrial Trucks, ANSI/ASME B56.1.*
- (W) Practice for Industrial Lighting, ANSI/IES RP-990.*
- (X) Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, ANSI/NFPA 91-1992.*
- (Y) Fire Department Self-Contained Breathing Apparatus Program, ANSI/NFPA 1404-1989.*
- (Z) Safety Code for Ventilation and Operation of Open-Surface Tanks, ANSI/UL 641-1985.*
- (d) Other standards. The following standards shall be considered standards under this section:*
- (A) ASME Boiler and Pressure Vessel Code, Section VIII, Unfired Pressure Vessels 1992, including addenda.*
- (B) Building Exits Code for Life Safety from Fire, NFPA 101-1991.*

(C) NFPA Code for Prevention of Sulfur Fires and Explosions, NFPA 655-1993.

(D) Safety in the Transportation, Storage, Handling and Use of Explosives, IME Pamphlet No. 17, March 1987, Institute of Makers of Explosives.

(2) Employee Training.

- (a) Employees shall not be permitted to operate any machine or equipment until they have received proper training and are familiar with safe operating procedures.*
- (b) Employees shall be trained in proper lifting or moving techniques and methods. Mechanical devices should be used or employees should ask for assistance in lifting or moving heavy objects.*
- (c) In each area where hazardous substances may be encountered, personnel shall be trained to cope with emergencies arising from breaks, ruptures, or spills which would create a hazardous condition.*
- (d) Any faulty equipment or hazardous condition shall be promptly reported to the person in charge.*
- (e) When an employee is assigned to work alone in a remote or isolated area, a system shall be instituted whereby such employee reports to someone or a designated person shall check on his or her safety. The procedure shall designate the method of contact and the frequency. All persons will be trained on the procedures.*

(3) Safe Practices.

- (a) Guards. All driving mechanisms, power transmission apparatus, and prime movers shall be constructed, guarded, and used in conformity with Subdivision O, Machinery and Machine Guarding.*
- (b) Inspection of controls and safety devices. Brakes, back stops, antirunaway devices, overload releases, and other safety devices shall be inspected and tested frequently to insure that all are operative and maintained in good repair.*
- (c) Personal protective clothing and equipment. Personal protective clothing and equipment shall be provided and worn in accordance with Subdivision I, Personal Protective Equipment. Respiratory protection must conform to the requirements of 1910.134 of Subdivision I.*

- (d) Floors and platforms. Floors, platforms, and work surfaces shall be guarded and maintained in accordance with Subdivision D, Walking-Working Surfaces.*
- (e) Lockouts. Lockout/tagout shall be in accordance with the requirements of 1910.147, in Subdivision J, with the exception that:*
- (A) There will be no tagouts allowed in lieu of lockout for that which can be locked out. Tags are provided for identification and information purposes only.*
- (B) Persons engaged in repair, inspection, maintenance, or clean-up shall lockout the affected equipment, retain possession of the keys to the locks, and personally remove the lock and tag upon completion of the work.*
- (C) Group lockout. (See Appendices A and B.)*
- (i) When servicing and/or maintenance is performed by a crew, craft, department or other group, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout device.*
- (ii) Group lockout devices shall be used in accordance with the procedures required by 1910.147(c)(4) including, but not necessarily limited to, the following specific requirements.*
- (I) Primary responsibility is vested in an authorized employee for a set number of employees working under the protection of a group lockout device (such as an operations lock);*
- (II) Provision for the authorized employee to ascertain the exposure status of individual group members with regard to the lockout of the machine or equipment; and*
- (III) When more than one crew, craft, department, etc. is involved, assignment or overall job-associated lockout control responsibility to an authorized employee designated to coordinate affected work forces and ensure continuity of protection; and*
- (IV) Each authorized employee shall affix a personal lockout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work, and shall remove those devices when he or she stops working on the machine or equipment being serviced or maintained; and*

- (V) Any person involved in the lockout process shall have the right to place their own lock at each lockout location where group lockout procedures have been allowed.*
- (f) Confined space entry. Confined space entry shall be in accordance with 437-002-0146 Confined Spaces, in Subdivision J.*
- (g) Industrial power trucks.*
- (A) All industrial power trucks and operations shall conform to 1910.178, Powered Industrial Trucks, Subdivision N, Material Handling and Storage. All forklift trucks shall be provided with overhead guards. Design requirements shall provide protection for the liquid petroleum gas tank. All guards shall be designed in compliance with 1910.178, Powered Industrial Trucks, in Subdivision N.*
- (B) Mirrors or other methods to ensure visibility shall be installed at blind corners or intersections which will allow operators to observe oncoming traffic.*
- (C) Every power truck operated from an end platform or standing position shall be equipped with a platform extending beyond the operator's position, strong enough to withstand a compression load equal to the weight of the loaded vehicle applied along the longitudinal axis of the truck with the outermost projection of the platform against the flat vertical surface.*
- (D) Pushing of vehicles or rail cars with the forks or clamps of a lift truck is prohibited.*
- (h) Emergency lighting.*
- (A) Emergency lighting shall be provided wherever it is necessary for employees to remain at their machines or stations to shut down equipment in case of power failure. Emergency lighting shall be provided at stairways and passageways or aiseways used by employees for emergency exit in case of power failure. Emergency lighting shall be provided in all plant first aid and medical facilities.*
- (B) Emergency lighting shall be maintained in accordance with the manufacturer or engineering specifications, and shall be checked at least every 30 days for defects.*
- (i) Electrical equipment. All electrical installations and electrical utilization equipment shall comply with the National Electrical Code requirements and the provisions of Subdivision S, Electrical.*

(4) Handling and Storage of Pulpwood and Pulp Chips.

- (a) Handling pulpwood with forklift trucks. Where large forklift trucks, or lift trucks with clam-jaws, are used in the yard, the operator's enclosed cab shall be provided with an escape hatch, whenever the hydraulic arm blocks escape through the side doors.*
- (b) Handling pulpwood with cranes or stackers.*
- (A) Where locomotive cranes are used for loading or unloading pulpwood, the pulpwood shall be piled so as to allow a clearance of not less than 24 inches between the pile and the end of the cab of any locomotive crane in use, when the cab is turned in any working position.*
- (B) The minimum distance of the pulpwood pile from the centerline of a standard-gage track shall be maintained at not less than 8-1/2 feet.*
- (C) Logs shall be piled in an orderly and stable manner, with no projection into walkways or roadways.*
- (D) Rail cars shall not be spotted on tracks adjacent to the locomotive cranes unless a 24 inch clearance is maintained, as required in section (4)(b)(A) of this rule.*
- (E) The handling and storage of other materials shall conform to sections (4)(b)(A) and (B) of this rule with respect to clearance.*
- (F) Equipment and practices shall conform to American National Standards B30.2-1990 and B30.2.0-1967.*
- (G) Personal protective equipment for such uses as foot, head, and eye protection shall be required for workers on a job basis.*
- (H) No person shall be permitted to walk beneath a suspended load, bucket, or hook.*
- (c) Pulpwood storage and handling.*
- (A) Unauthorized vehicles and unauthorized foot traffic shall not be allowed in any active sorting, storing, loading, or unloading areas.*
- (B) Unloading lines shall be so arranged that it is not necessary for the workers to attach them on the pond or dump side of the load.*
- (C) Jackets or vests of fluorescent or other high visibility material shall be worn by persons working on dry land log storage.*
- (D) Wire rope doglines used for towing or rafting shall not be used when:*

- (i) They acquire jiggers to the extent that they present a hazard to the workers handling them; or*
 - (ii) When they are weakened to the extent that they are hazardous.*
- (E) Boom sticks shall be capable of safely supporting the weight imposed upon them.*
- (F) Stiff booms shall be made by fastening not less than two boom sticks together. The width of the stiff boom shall be not less than 36 inches measured from outside to outside of the outer logs. The boom sticks shall be fastened together with not less than 4-inch by 6-inch cross ties or cable lashing properly recessed into notches in the boom sticks and secured.*
- (G) Pike poles shall be kept in good repair. Conductive pike poles shall not be used where it is possible that they may come in contact with electrical conductors.*
- (H) All log dumps shall be periodically cleared of bark and other debris.*
- (I) When cutting bands on bundled logs, workers shall position themselves in a safe location. Double-bitted axes shall not be used for cutting bands. Caution shall be used to prevent being struck by ends of bands being cut and, if needed, personal protective equipment shall be worn.*
- (J) Storing or sorting on water, or any boom work other than boom boat operations, shall require a minimum of two persons.*
- (d) Handling pulpwood from ships.*
 - (A) Ladders and gangplanks with railings to boat docks shall meet the requirements of American National Standards A10.18-1983, A14.1-1990, A14.2-1990, and A14.3-1990, and shall be securely fastened in place.*
 - (B) The hatch tender shall be required to signal the hoisting engineer to move the load only after the employees working in the hold are in the clear.*
 - (C) The air in the ship's hold, tanks, or closed vessels shall be tested for oxygen deficiency and for toxic, explosive and combustible gases and vapors.*
- (e) Handling pulpwood from flatcars and all other rail cars.*

- (A) *Railroad flatcars for the conveyance of pulpwood loaded parallel to the length of the car shall be equipped with safety-stake pockets.*
- (B) *Where pulpwood is loaded crosswise on a flatcar sufficient stakes of sizes not smaller than 4 by 4 inches shall be used to prevent the load from shifting.*
- (C) *When it is necessary to cut stakes, those on the unloading side should be partially cut through first, and then the binder wires cut on the opposite side. Wire cutters equipped with long extension handles shall be used. No person shall be permitted along the dumping side of the car after the stakes have been cut.*
- (D) *When steel straps without stakes are used, the steel straps shall be cut from a safe area to prevent employees from being struck by the falling logs.*
- (E) *Flatcars and all other cars shall be chocked during unloading. Where equipment is not provided with hand brakes, rail clamping chocks shall be used.*
- (F) *A derail shall be used to prevent movement of other rail equipment into cars where persons are working.*
- (f) *Handling pulpwood from trucks.*
- (A) *Cutting of stakes and binder wires shall be done in accordance with section (4)(e)(C) of this rule.*
- (B) *Where binder chain and steel stakes are used, the binder chains shall be released and the stakes tripped from the opposite side of the load spillage.*
- (C) *Where binder chains and crane slings are used, the crane slings shall be attached and taut before the binder chains are released. The hooker shall see that the helper is clear before signaling for the movement of the load.*
- (D) *The truck driver shall leave the truck cab and be in the clear, in a designated area, and shall be in clear view of the unloading equipment operator while the unloader is approaching the loaded truck.*
- (E) *The truck driver shall remain outside the cab and clear of the load while logs are being unloaded except that, after a complete load is lifted as a unit and held stationary, the driver may enter the cab and drive forward from under the suspended load.*

(F) Log unloaders shall not be moved about the premises with loads raised higher than absolutely necessary.

(g) Handling pulp chips from rail cars.

(A) All cars shall be securely fastened in place and all employees in the clear before dumping is started.

(B) Personal protective equipment for such uses as foot, head, and eye protection shall be provided, and employees shall wear the equipment when working in the woodyard. Ear protection shall be provided when the noise level may be harmful.

(C) When a rollover-type unloading device is used for removing chips from cars, the cars shall be properly secured in place, and all employees shall be in the clear before dumping operation is started.

(h) Handling pulp chips and hog fuel from trucks and trailers.

(A) All trucks and trailers shall be secure and all employees in the clear before dumping is started.

(B) Personal protective equipment necessary to protect workers from hazards shall be provided and worn.

(C) Elevating platform-type or cable-lift type unloading devices shall have adequate back bumper stops.

(D) Side rails or other positive means to prevent the truck and/or trailer from falling shall be used while unloading the single trailer units.

(E) All persons shall be clear of all hoisting or elevating mechanisms before dumping commences.

(F) No person shall remain in any truck while the truck is being elevated.

(G) A safe area and suitable device shall be provided for the chip tester to use while taking chip samples.

(H) Rolled chip nets shall not be positioned where they cover the ladders on rail cars or trucks.

(I) Chip and hog fuel storage.

(i) When mobile equipment is used on top of hog fuel or chip piles, a roll-over protection system shall be installed on the equipment. If the cab is of the enclosed type, windshield wipers shall be installed.

- (ii) Hog fuel bins shall be provided with standard railed platform or walkways near the top or other equally effective means shall be provided for use by employees engaged in dislodging hog fuel.*
- (iii) Extreme care shall be taken to prevent chips or hog fuel from creating an overhang or bridging.*
- (iv) Employees shall be prohibited from working under overhangs or bridges.*
- (J) Chip and sawdust bins. Steam or compressed-air lances, or other facilities, shall be used for breaking down the arches caused by jamming in chip lofts. No worker shall be permitted to enter a bin unless done in accordance with 1910.146, Permit-Required Confined Spaces, in Subdivision J.*
- (i) Crane operations.*
 - (A) Crane boom and load capacities as specified by the manufacturer shall be posted in the cab of the crane in accordance with 1910.180, Crawler, Locomotive and Truck Cranes, in Subdivision N, Material Handling and Storage.*
 - (B) A safety device such as a heavy chain or cable at least equal in strength to the lifting cables shall be fastened to the boom and to the frame of the boom crane (if it is other than locomotive) at the base. Alternatively, a telescoping safety device shall be fastened to the boom and to the cab frame, so as to prevent the boom from snapping back over the cab in the event of lifting cable breakage.*
 - (C) A crane shall not be operated where any part thereof may come within 10 feet of overhead powerlines (or other overhead obstructions) unless the powerlines have been deenergized, or clearances are maintained as specified in 1910.303, General Requirements, in Subdivision S, Electrical.*
 - (D) Standard signals for the operation of cranes shall be established for all movements of the crane, in accordance with American National Standards B30.2-1990 and B30.8-1988.*
 - (E) Only one member of the crew shall be authorized to give signals to the crane operator.*
 - (F) All cranes shall be equipped with a suitable warning device such as a horn or whistle.*

(G) A sheave guard shall be provided beneath the head sheave of the boom.

(H) Grapples, tongs, and buckets shall not be left suspended when not in use.

(j) Traffic warning signs or signals.

(A) A flagger shall direct the movement of cranes or locomotives being moved across railroad tracks or roads, and at any points where the vision of the operator is restricted. The flagger must always remain in sight of the operator when the crane or locomotive is in motion. The blue flag policy shall be used to mark stationary cars day and night. This policy shall include marking the track in advance of the spotted cars (flag for daytime, light for darkness).

(B) After cars are spotted for loading or unloading, warning flags or signs shall be placed in the center of the track at least 50 feet away from the cars and a derail set to protect workers in or on the car.

(k) Rail car operations and railroad warning devices.

(A) On a dead end spur, a blue signal may be displayed adjacent to the switch opening while cars are being loaded or unloaded. When such warning devices are displayed, the equipment shall not be coupled to or moved.

(B) Equipment which would obscure the blue signal shall not be placed on the track.

(C) Each maintenance crew shall display and remove its own set of blue signals.

(D) A flashing warning light or other device shall be installed near any opening which leads to a passageway crossing railroad tracks adjacent to the building. Such light or device shall be activated prior to any switching or movement of railroad equipment to warn workers of the dangerous condition in the area.

(E) Workers shall not crawl under or pass between coupled rail cars to cross tracks.

(F) An audible whistle, horn, or bell shall be sounded by the locomotive engineer to give adequate warning prior to switching across any road crossing.

- (G) When switching railroad equipment in congested areas or across roadways or walkways, "flying switches" shall be prohibited.*
- (H) All freight car doors shall be inspected before workers open or close them. A safe method shall be used to open or close the door.*
- (I) Illumination. Artificial illumination shall be provided when loading or unloading is performed after dark, in accordance with American National Standard ANSI/IES-RP-1990, Practice for Industrial Lighting.*
- (m) Bridge or dock plates.*
- (A) The construction and use of bridge or dock plates shall conform to requirements of Subdivision D.*
- (B) The sides of bridge or dock plates shall have an upturn or lip of at least 4 inches covering the area between the edge of the loading dock and edge of car or truck floor whenever the distance exceeds 18 inches to prevent wheeled equipment from running off the sides.*
- (C) Bridge or dock plates shall have at least 6 inches bearing surface on the loading dock.*
- (D) Bridge or dock plates intended to be moved by mechanized equipment shall be designed for this purpose or attachments for safe handling shall be used.*
- (n) Hand tools. Handles of wood hooks shall be locked to the shank to prevent them from rotating.*
- (o) Removal of pulpwood.*
- (A) The ends of a woodpile shall be properly sloped and cross-tiered into the pile. Upright poles shall not be used at the ends of woodpiles. To knock down wood from the woodpile, mechanical equipment shall be used to permit employees to keep in the clear of loosened wood.*
- (B) If dynamite is used to loosen the pile, only authorized personnel shall be permitted to handle and discharge the explosive. An electric detonator is preferable for firing; if a fuse is used, it shall be an approved safety fuse with a burning rate of not less than 120 seconds per yard and a minimum length of 3 feet, in accordance with "Safety in the Transportation, Storage, Handling and Use of Explosives", IME Pamphlet No. 17, March 1987.*
- (p) Log hauls, slips and carriages.*

- (A) Controls shall be arranged to operate from a position where the operator will at all times be in the clear of logs, machinery, lines, and rigging.*
- (B) Controls shall be marked to indicate their function.*
- (C) An effective method of disengaging the head rig saws from the power unit shall be installed on all head rigs where the power unit is not directly controlled by the sawyer. The saws shall be disengaged from the source of power which shall be locked out before repairs or changes are made.*
- (D) When needed for protection of personnel, an automatic stop or interlocking device shall be installed on log hauls or slips.*
- (E) A barricade or other positive stop of adequate strength shall be provided to protect the sawyer from rolling logs.*
- (F) A guard shall be provided to prevent logs from rolling off the log deck into the well.*
- (G) The sawyer shall be safeguarded either by his or her location or by use of substantial screens or approved safety glass.*
- (H) A substantial stop or bumper shall be installed at each end of the carriage run.*
- (I) Canting gear or other equipment shall not be allowed to hang over the log deck in such a manner as to endanger employees.*
- (J) Canting gear controls shall be marked to indicate their function.*
- (K) The sawyer shall be primarily responsible for the safety of the carriage crew and offbearers. He or she shall exercise due care in the operation of the carriage and log turning devices.*
- (L) A control device shall be provided so that the sawyer may stop the head rig section of the mill without leaving his or her stand.*
- (M) The feed control lever of friction or belt-driven carriage feed works shall be designed to operate away from the saws or carriage track.*
- (N) Feed works and log turning control levers shall be so arranged that they may be secured when not in use and shall be adequately guarded against accidental activation.*
- (O) Carriages upon which persons are required to work shall be solidly decked over and the employees properly protected.*

- (P) Substantial sweeps shall be installed in front of each carriage wheel. Such sweeps shall extend to within 1/4 inch of the rails.*
- (Q) Where power-operated log turners are used, carriage knees shall be provided with goosenecks or other substantial means of protecting the carriage crew.*
- (q) Belt conveyors.*
- (A) The sides of the conveyor shall be constructed so that the pulpwood will not fall off.*
- (B) Where conveyors cross passageways or roadways, a horizontal platform shall be provided under the conveyor extending out from the sides of the conveyor a distance equal to 1 1/2 times the length of the wood handled. The platform shall extend the width of the road plus 2 feet on each side and shall be kept free of wood and rubbish. The edges of the platform shall be provided with toeboards or other protection to prevent wood from falling, in accordance with American National Standard A10.18-1983.*
- (C) All conveyors for pulpwood shall have the in-running nips between chain and sprockets guarded; also, turning drums shall be guarded.*
- (D) Every belt conveyor shall have an emergency stop cable extending the length of the conveyor so that it may be stopped from any location along the line, or conveniently located stop buttons within 10 feet of each work station, in accordance with American National Standard ANSI/ASME B20.1-1993.*
- (r) Signs. Where conveyors cross walkways or roadways in the yards, signs reading "Danger – Overhead Conveyor" or an equivalent warning shall be erected, in accordance with American National Standard for Safety Color Code, ANSI Z535.1-1991 or ANSI Z535.2-2011.*
- (5) Handling and Storage of Raw Materials Other Than Pulpwood or Pulp Chips.*
- (a) Personal protective equipment.*
- (A) Whenever possible, all dust, fumes, and gases incident to handling materials shall be controlled at the source, in accordance with OAR 437-002-0382, Oregon Rules for Air Contaminants, in Subdivision Z. Where control at the source is not possible, respirators with goggles or protective masks shall be provided, and employees shall wear them when handling alum, clay, soda ash, lime, bleach powder, sulfur, chlorine, and similar materials, and when opening rag bales.*

(B) When handling liquid acid or alkali, workers shall be provided with approved eye and face protection and protective clothing, in accordance with Subdivision I, Personal Protective Equipment.

(b) Clearance.

(A) When materials are being piled inside a building and upon platforms, an aisle clearance at least 3 feet greater than the widest truck in use shall be provided.

(B) Baled paper and rags stored inside a building shall not be piled closer than 18 inches to walls, partitions, or sprinkler heads.

(c) Piling and unpling pulp.

(A) Piles of wet lap pulp (unless palletized) shall be stepped back one-half the width of the sheet for each 8 feet of pile height. Sheets of pulp shall be interlapped to make the pile secure. Pulp shall not be piled over pipelines to jeopardize pipes, or so as to cause overloading of floors, or to within 18 inches below sprinkler heads.

(B) Piles of pulp shall not be undermined when being unplied.

(C) Floor capacities shall be clearly marked on all floors.

(d) Chocking rolls.

(A) Where rolls are pyramided two or more high, chocks shall be installed between each roll on the floor and at every row. Where pulp and paper rolls are stored on smooth floors in processing areas, rubber chocks with wooden core shall be used.

(B) When rolls are decked two or more high, the bottom rolls shall be chocked on each side to prevent shifting in either direction.

(6) Preparing Pulpwood.

(a) Gang and slasher saws. A guard shall be provided in front of all gang and slasher saws to protect workers from wood thrown by saws. A guard shall be placed over tail sprockets.

(b) Slasher tables. Saws shall be stopped and power switches shall be locked out and tagged whenever it is necessary for any person to be on the slasher table.

(c) Slasher drive belts, pulleys, and shafts. All belts, pulleys, and shafts shall be guarded in accordance with American National Standard ANSI/ASME B15.1-1992.

- (d) Runway to the jack ladder. The runway from the pond or unloading dock to the table shall be protected with standard handrails and toeboards. Inclined portions shall have cleats or equivalent nonslip surfacing, in accordance with Subdivision D, Walking-Working Surfaces. Protective equipment shall be provided for persons working over water.*
- (e) Guards below table. Where not protected by the frame of the machine, the underside of the slasher saws shall be enclosed with guards.*
- (f) Conveyors. The requirements of section (4)(q) of this rule shall apply.*
- (g) Circular saws (not slasher saws). Saws shall be provided with standard guards, in accordance with American National Standard ANSI O1.1-1992.*
- (h) Fixed chain saws, circular cut-off saws, drag and swing saws.*
- (A) Saws shall be so arranged that they will not project into any passageway when in an idle or working position. When existing conditions do not leave clear passage the saws shall be fenced off in order to make it impossible for anyone to walk into them.*
- (B) Drag saws and fixed chain saws shall be equipped with a device that will safely lock them in an "UP" position.*
- (C) All persons shall be in the clear before starting operations of a drag, chain, or swing saw.*
- (D) Log decks shall be equipped with a device to hold the material stable while being cut.*
- (i) Barker feed. Each barker shall be equipped with a feed and turnover device which will make it unnecessary for the operator to hold a bolt or log by hand during the barking operation. Eye, ear, and head protection shall be provided for the operator, in accordance with section (3)(c) of this rule.*
- (j) Guards. A guard shall be installed around barkers to confine flying particles, in accordance with ANSI/ASME B15.1-1992.*
- (k) Stops. All control devices shall be locked out and tagged when knives are being changed.*
- (l) Speed governor. Water wheels, when directly connected to barker disks or grinders, shall be provided with speed governors, if operated with gate wide open.*
- (m) Continuous barking drums.*

- (A) When platforms or floors allow access to the sides of the drums, a standard railing shall be constructed around the drums. When two or more drums are arranged side by side, proper walkways with standard handrails shall be provided between each set, in accordance with section (3)(d) of this rule.*
- (B) Sprockets and chains, gears, and trunnions shall have standard guards, in accordance with section (3)(a) of this rule.*
- (C) Whenever it becomes necessary for a worker to go within a drum, the driving mechanism shall be locked and tagged, at the main disconnect switch, in accordance with section (3)(e) of this rule.*
- (D) This subsection (m) also applies to barking drums employed in the yard.*
- (n) Intermittent barking drums. In addition to motor switch, clutch, belt shifter, or other power disconnecting device, intermittent barking drums shall be equipped with a device which may be locked to prevent the drum from moving while it is being emptied or filled.*
- (o) Hydraulic barkers.*
- (A) Hydraulic barkers shall be enclosed with strong baffles at the inlet and the outlet. The operator shall be protected by at least five-ply laminated glass.*
- (B) The high pressure hoses of hydraulic barkers shall be secured in such a manner that the hose connection ends will be restrained if a hose connection fails.*
- (p) Splitter block. The block upon or against which the wood is rested shall have a corrugated surface or other means provided that the wood will not slip. Wood to be split, and also the splitting block, shall be free of ice, snow, or chips. The operator shall be provided with eye and foot protection. A clear and unobstructed view shall be maintained between equipment and workers around the block and the workers' help area.*
- (q) Power control. Power for the operation of the splitter shall be controlled by a clutch or equivalent device.*
- (r) Knot cleaners. The operators of knot cleaners of the woodpecker type shall wear eye protection equipment.*

- (s) Chipper spout. The feed system to the chipper spout shall be arranged in such a way that the operator does not stand in a direct line with the chipper spout. All chipper spouts shall be enclosed to a height of at least 42 inches from the floor or operator's platform. When other protection is not sufficient, the operator shall be protected from falling into the chipper by the use of a safety belt and lanyard. Ear protection equipment shall be worn by the operator and others in the immediate area if there is any possibility that the noise level may be harmful (see 1910.95, Occupational Noise Exposure, in Subdivision G).*
- (t) Feeding material/clearing jams in machines. Appropriate safety belts and lanyards and face protection shall be used by employees who manually feed material or clear jams in machines unless other provisions are made which will protect the employees.*
- (u) Carriers for knives. Carriers shall be provided and used for transportation of knives.*
- (7) Rag and Old Paper Preparation.*
- (a) Ripping and trimming tools.*
- (A) Hand knives and scissors shall have blunt points, shall be fastened to the table with chain or thong, and shall not be carried on the person but placed safely in racks or sheaths when not in use.*
- (B) Hand knives and sharpening steels shall be provided with guards at the junction of the handle and the blade. Utility knives with blade exposure of 2-1/2 inches or less are exempted from this requirement.*
- (b) Shredders, cutters, and dusters.*
- (A) Rotating heads or cylinders shall be completely enclosed except for an opening at the feed side sufficient to permit only the entry of stock. The enclosure shall extend over the top of the feed rolls. It shall be constructed either of solid material or with mesh or openings not exceeding 1/2-inch and substantial enough to contain flying particles and prevent accidental contact with moving parts. The enclosure shall be bolted or locked into place.*
- (B) A smooth-pivoted idler roll resting on the stock or feed table shall be provided in front of feed rolls except when arrangements prevent the operator from standing closer than 36 inches to any part of the feed rolls.*

(C) Any manually fed cutter, shredder, or duster shall be provided with an idler roll as per section (7)(b)(B) of this rule or the operator shall use special hand-feeding tools.

(D) Hoods of cutters, shredders, and dusters shall have exhaust ventilation, in accordance with 1910.94, Ventilation, in Subdivision G.

(c) Blowers.

(A) Blowers used for transporting rags shall be provided with feed hoppers having outer edges located not less than 48 inches from the fan.

(B) The arrangement of the blower discharge outlets and work areas shall be such as to prevent material from falling on workers.

(d) Conveyors. Conveyors and conveyor drive belts and pulleys shall be fully enclosed or, if open and within 7 feet of the floor, shall be constructed and guarded in accordance with section (4)(q) of this rule, and Subdivision N, Material Handling and Storage.

(e) Guarding requirements.

(A) Traveling sections of conveyors and other equipment with wheels which run on rails or guides shall be guarded by sweep guards, installed in front of the traveling wheels in all areas where workers may be exposed to contact. Sweep guards shall have not greater than 1/4 inch clearance above the rail or guide.

(B) When using mechanical equipment to elevate the front end of the chip containers for dumping into a hopper, the shear area between the floor and the elevated section shall be safeguarded.

(f) Dust. Measures for the control of dust shall be provided, in accordance with American National Standard ANSI/NFPA 91-1992 and Subdivision I, Personal Protective Equipment.

(g) Rag cookers.

(A) When cleaning, inspection, or other work requires that persons enter rag cookers, all steam and water valves, or other control devices, shall be locked and tagged in the closed or "off" position. Blank flanging of pipelines is acceptable in place of closed and locked valves.

(B) When cleaning, inspection, or other work requires that persons must enter the cooker, one person shall be stationed outside in a position to observe and assist in case of emergency, in accordance with section (3)(f) of this rule.

(C) Rag cookers shall be provided with safety valves in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Unfired Pressure Vessels – 1992.

(8) Chemical Processes of Making Pulp.

(a) Industrial kiln guns and ammunition. Management shall develop written instructions, including safety procedures, for storing and operating industrial kiln guns and ammunition. All persons working with this equipment shall be instructed in these procedures and shall follow them.

(b) Sulfur burners.

(A) Sulfur-burner houses shall be safely and adequately ventilated, and every precaution shall be taken to guard against dust explosion hazards and fires, in accordance with American National Standard Z9.2-1979 (R1991), and NFPA 655-1993.

(B) Nonsparking tools and equipment shall be used in handling dry sulfur.

(C) Sulfur storage bins shall be kept free of sulfur dust accumulation, in accordance with American National Standard ANSI Z9.2-1979 (R1991).

(D) Electric equipment shall be of the explosion-proof type, in accordance with the requirements of Subdivision S, Electrical.

(E) Sulfur-melting equipment shall not be located in the burner room.

(c) Protection for employees (acid plants).

(A) Gas masks, fitted with canisters containing absorbents for the particular acids, gases, or mists involved, shall be provided for employees of the acid department.

(B) Supplied air respirators shall be strategically located for emergency and rescue use.

(C) During inspection, repairs, or maintenance of acid towers, the worker shall be provided with eye protection, a supplied air respirator, a safety belt, and an attached lifeline. The line shall be extended to an attendant stationed outside the tower opening.

(d) Acid tower structure. Outside elevators shall be inspected daily during winter months when ice materially affects safety. Elevators, runways, stairs, etc., for the acid tower shall be inspected monthly for defects that may occur because of exposure to acid or corrosive gases.

- (e) *Tanks (acid). Entering acid tanks shall be in accordance with 437-002-0146 Confined Spaces, in Subdivision J.*
- (f) *Clothing. Where lime slaking takes place, employees shall be provided with rubber boots, rubber gloves, protective aprons, and eye protection. A deluge shower and eye fountain shall be provided to flush the skin and eyes to counteract lime or acid burns.*
- (g) *Lead burning. When lead burning is being done within tanks, fresh air shall be forced into the tanks so that fresh air will reach the face of the worker first and the direction of the current will never be from the source of the fumes toward the face of the workers. Supplied air respirators (constant-flow type) shall be provided.*
- Note: (For specifics refer to Subdivision Q, Welding, Cutting and Brazing; and 1910.1025, Lead, in Subdivision Z.)*
- (h) *Hoops for acid storage tanks. Hoops of tanks shall be made of rods rather than flat strips and shall be safely maintained by scheduled inspections.*
- (i) *Quicklime stoppages. Water shall not be used to unplug quicklime stops or plugs in pipes or confined spaces.*
- (j) *Digester building exits. At least one unobstructed exit at each end of the room shall be provided on each floor of a digester building.*
- (k) *Digester building escape respirators. Escape respirators shall be available for escape purposes only. These respirators shall meet the requirements of 1910.134 in Subdivision I, including the requirement to be inspected at frequent intervals, not to exceed one month.*
- (l) *Elevators.*
- (A) *Elevators shall be constructed in accordance with American National Standard A17.1-1990.*
- (B) *Elevators shall be equipped with escape respirators for the maximum number of passengers.*
- (C) *Elevators shall be equipped with an alarm system to advise of failure.*
- (m) *Blowoff valves and piping.*
- (A) *The blowoff valve of a digester shall be arranged so as to be operated from another room, remote from safety valves.*
- (B) *All fasteners used to secure digester piping shall conform to ANSI/ASME B31.1-1992.*

(C) Digester blow valves shall be pinned or locked in closed position throughout the entire cooking period. This rule applies only to manually operated valves in batch digestors.

(n) Blow lines.

(A) When blow lines from more than one digester lead into one pipe, the cock or valve of the blow line from the tank being inspected or repaired shall be locked and tagged out, or the line shall be disconnected and blocked off.

(B) Test holes in piping systems. Test holes in blow lines of piping systems shall not be covered with insulation or other materials.

(o) Inspection and repair of tanks. All piping leading to tanks shall be blanked off or valved and locked in accordance with 1910.147, Lockout/Tagout, in Subdivision J.

(p) Blow pits and blow tanks.

(A) Blow-pit openings shall be preferably on the side of the pit instead of on top. When located on top, openings shall be as small as possible and shall be provided with railings, in accordance with Subdivision D, Walking-Working Surfaces.

(B) Entrance into blow pits must be done in accordance with 437-002-0146, Subdivision J.

(C) A signaling device shall be installed in the digester and blow-pit rooms and chip bins to be operated as a warning before and while digesters are being blown.

(D) Blow-pit hoops shall be maintained in a safe condition.

(q) Blowing batch digester.

(A) Blowoff valves shall be opened slowly.

(B) After the digester has started to be blown, the blowoff valve shall be left open, and the hand plate shall not be removed until the digester cook signals the blowpit person that the blow is completed. Whenever it becomes necessary to remove the hand plate to clear stock, operators shall wear eye protection equipment and protective clothing to guard against burns from hot stock.

(C) Means shall be provided whereby the digester cook shall signal the person in the chip bin before starting to load the digester.

(r) Inspecting and repairing digester.

- (A) Valves controlling lines leading into a digester shall be locked out and tagged in accordance with 1910.147, Lockout/Tagout, in Subdivision J.*
- (B) Sources of energy associated with a digester shall be isolated in accordance with 1910.147, Lockout/Tagout, in Subdivision J.*
- (C) Entry into the digester shall be in accordance with 437-002-0146 Confined Spaces, in Subdivision J.*
- (D) The concentration of lead in the air shall not exceed the limits specified in 1910.1025, Lead, Subdivision Z.*
- (E) All employees entering digesters for inspection or repair work shall be provided with protective headgear.*
- (F) Eye protection and dust respirators shall be provided to workers while the old brick lining is being removed, in accordance with Subdivision I, Personal Protective Equipment.*
- (G) Sanitary facilities shall be provided as specified in 1910.141, Sanitation, in Subdivision J.*

(s) Pressure tanks-accumulators (acid).

- (A) Safety regulations governing inspection and repairing of pressure tanks-accumulators (acid) shall be the same as those specified in section (8)(t) of this rule.*
- (B) The pressure tanks-accumulators shall be inspected twice annually and more frequently if required by the manufacturer or engineer's recommendations. (Refer to Boiler and Pressure Vessel Safety Laws of the State Building Codes Division, Department of Consumer and Business Services.)*

(t) Pressure vessels (safety devices).

- (A) Each unfired pressure vessel shall have a pressure relieving device or devices installed and operated in accordance with ASME Boiler and Pressure Vessel Code, Section VIII (Unfired Pressure Vessels – 1992). In the case of batch digesters with safety pressure relieving devices installed directly to the pressure vessel, means shall be devised to verify regularly that the safety devices have not become plugged or corroded to the point of being inoperative.*

- (B) All safety devices shall conform to Paragraph U-2 in the ASME Boiler and Pressure Vessel Code, Section VIII, Unfired Pressure Vessels – 1992.*
- (u) Miscellaneous. Insofar as the processes of the sulfate and soda operations are similar to those of the sulfite processes, sections (8)(a) through (t) of this rule shall apply.*
- (A) Quick operating showers, bubblers, etc., shall be available for emergency use in case of caustic soda burns.*
- (B) Rotary tenders, smelter operators, and those cleaning smelt spouts shall be provided with eye protection equipment (fitted with lenses that filter out the harmful rays emanating from the light source) when actively engaged in their duties, in accordance with OAR 437-002-0134, in Subdivision I.*
- (C) Piping, valves and fittings between the digester, blowpit, and blow tanks shall be in accordance with ANSI/ASME B31.1-1992. These shall be inspected at least semi-annually to determine the degree of deterioration and repaired or replaced when necessary, in accordance with American National Standards ANSI/ASME B31.1-1992.*
- (v) Welding. Welding on blow tanks, accumulator tanks, or any other vessels where turpentine vapor or other combustible vapor could gather shall be done only after the vessel has been completely purged of fumes. Fresh air shall be supplied workers inside of vessels.*
- Note: See Subdivision Q, Welding, Cutting and Brazing, for additional welding requirements.*
- (w) Turpentine systems and storage tanks. Nonsparking tools and ground hose shall be used when pumping out the tank. The tank shall be surrounded by a berm or moat.*
- (x) Recovery furnace area.*
- (A) An audible warning system shall be installed in kraft and soda base sulfite recovery furnace areas and shall be activated whenever an emergency exists.*
- (B) All personnel working in recovery furnace areas shall be instructed on procedures to be followed when emergency warning systems are activated.*

- (C) Emergency warning systems in the recovery furnace areas shall be kept in proper working condition and shall be tested or checked weekly.*
- (D) Workers shall stand to the side while opening a furnace or boiler firebox door.*
- (E) Smelt-dissolving tanks shall be covered and the cover kept closed, except when samples are being taken.*
- (F) Smelt tanks shall be provided with vent stacks and explosion doors, in accordance with American National Standard ANSI/UL 641-1985.*
- (G) An emergency shutdown procedure as currently recommended by the boiler manufacturer shall be implemented and used when an emergency shutdown is required. Both normal and emergency shutdown procedures shall be posted.*
- (H) Recovery furnaces and power boilers are to be constructed, maintained, and serviced as required by the State Building Codes Division of the Department of Consumer and Business Services.*
- (I) Open pipes shall not be used as punch bars if the use would create a hazard.*
- (J) Furnace room. Exhaust ventilation shall be provided where niter cake is fed into a rotary furnace and shall be so designed and maintained as to keep the concentration of hydrogen sulfide gas below the limits listed in OAR 437-002-0382, Oregon Rules for Air Contaminants, in Subdivision Z.*
- (9) Bleaching.*
- (a) Bleaching containers. Bleaching containers, such as cells, towers (bleaching engines), etc., except the Bellmer type, shall be completely covered on the top, with the exception of one small opening large enough to allow filling but too small to admit a person. Platforms leading from one engine to another shall have standard guardrails, in accordance with Subdivision D, Walking-Working Surfaces.*
- (b) Bleach plant alarm system. An audible alarm system shall be installed and it shall be activated whenever a serious leak or break develops in the bleach plant area which creates a health or fire hazard.*
- (c) Bleach mixing rooms.*

- (A) Areas where dry bleach powder is mixed shall be provided with adequate exhaust ventilation, located at the floor level, in accordance with ANSI/UL 641-1985.*
- (B) Respiratory protection shall be provided for emergency use, in accordance with American National Standards ANSI/NFPA 1404-1989, and Z88.2-1980. Respiratory protection must conform to the requirements of 1910.134 of Subdivision I.*
- (C) For emergency and rescue work, self-contained air masks or supplied air equipment shall be provided in accordance with American National Standards Z88.2-1980. Respiratory protection must conform to the requirements of 1910.134 of Subdivision I.*
- (d) Liquid chlorine.*
- (A) Tanks of liquid chlorine shall be stored in an adequately ventilated unoccupied room, where their possible leakage cannot affect workers.*
- (B) Gas masks capable of absorbing chlorine shall be supplied, conveniently placed, and regularly inspected, and workers who may be exposed to chlorine gas shall be instructed in their use.*
- (C) For emergency and rescue work, independent self-contained breathing apparatus or supplied air equipment shall be provided.*
- (D) At least two exits, remote from each other, shall be provided for all rooms in which chlorine is stored.*
- (E) Spur tracks upon which tank cars containing chlorine and caustic are spotted and connected to pipelines shall be protected by means of a derail in front of the cars.*
- (F) All chlorine, caustic, and acid lines shall be marked for positive identification, in accordance with American National Standard A13.1-1981 (R 1985).*
- (e) Handling chlorine dioxide.*
- (A) Chlorine dioxide generating and storage facilities shall be placed in areas which are adequately ventilated and are easily kept clean of wood, paper, pulp, etc., to avoid contamination which might cause a reaction. This can be accomplished by placing these facilities in a separate room or in a designated outside space.*

- (B) Safety showers and/or jump tanks and eyewash fountains shall be provided for persons working around sodium chlorate and the other hazardous chemicals involved in this process.*
- (C) Water hoses for flushing spills shall be adequate in size and located where needed.*
- (D) The generating area shall have signs in accordance with Subdivision J, General Environmental Controls, warning of the hazard and restricting entrance to authorized personnel only.*
- (E) Facilities handling sodium chlorate and chlorine dioxide shall be declared "No Smoking" areas and shall have signs posted accordingly.*
- (F) All equipment involved in the chlorine dioxide process where pressure may be generated shall be provided with adequate pressure relief devices.*
- (G) Respiratory protective equipment approved for use in exposures to chlorine and chlorine dioxide gases shall be provided.*
- (H) Management shall be responsible for developing written instructions including safety procedures for operating and maintaining the generator and associated equipment. All personnel working on this equipment shall be thoroughly trained in these procedures and shall follow them.*
- (I) Only authorized personnel shall be allowed in close proximity to the chlorine dioxide generating equipment.*
- (J) When reasonably possible, the sample station should be located on the outside of the generating room. Goggles must be worn when taking samples.*
- (K) Welding or burning shall not be performed on the generator system while it is operating. Immediately before maintenance can be performed on the inside of any of this equipment, it shall be thoroughly flushed with water and purged of hazardous gases.*
- (L) Chlorine and chlorine dioxide gas shall be carried away from the work place and breathing area by an exhaust system. The gas shall be rendered neutral or harmless before being discharged into the atmosphere. The requirements of American National Standard Z9.2-1979 (R1991) shall apply to this subdivision.*
- (f) Handling sodium chlorate.*

- (A) Workers handling and working with sodium chlorate shall be thoroughly trained in precautions to be used in handling and special work habits.*
- (B) Workers exposed to direct contact with sodium chlorate shall wear appropriate personal protective equipment.*
- (C) Facilities for storage and handling of sodium chlorate shall be constructed so as to eliminate possible contact of dry or evaporated sodium chlorate with wood or other material which could cause a fire or explosion.*
- (D) Chlorine gas shall be carried away from the work place and breathing area by an exhaust system. The gas shall be rendered neutral or harmless before being discharged into the atmosphere. The requirements of American National Standard Z9.2-1979 (R1991) shall apply to this subdivision.*
- (E) Sodium chlorate facilities shall be constructed with a minimum of packing glands, stuffing boxes, etc.*
- (g) Bagged or drummed chemicals. Bagged or drummed chemicals require efficient handling to prevent damage and spillage. Certain oxidizing chemicals used in bleaching pulp and also in some sanitizing work require added precautions for safety in storage and handling. In storage, these chemicals shall be isolated from combustible materials and other chemicals with which they will react such as acids. They shall also be kept dry, clean and uncontaminated.*
- (10) Mechanical Pulp Process.*
- (a) Pulp grinders.*
- (A) Water wheels directly connected to pulp grinders shall be provided with speed governors limiting the peripheral speed of the grinder to that recommended by the manufacturer.*
- (B) Doors of pocket grinders shall be arranged so as to keep them from closing accidentally.*
- (b) Butting saws. Hood guards shall be provided on butting saws, in accordance with American National Standard ANSI O1.1-1992.*
- (c) Floors and platforms. The requirements of section (3)(d) of this rule shall apply.*

(d) Personal protection. Persons exposed to falling material shall wear eye, head, foot, and shin protection equipment, in accordance with Subdivision I, Personal Protective Equipment.

(11) Stock Preparation.

(a) Pulp shredders.

(A) Cutting heads shall be completely enclosed except for an opening at the feed side sufficient to permit only entry of stock. The enclosure shall be bolted or locked in place. The enclosure shall be of solid material or with mesh or other openings not exceeding 1/2-inch.

(B) Either a slanting feed table with its outer edge not less than 36 inches from the cutting head or an automatic feeding device shall be provided.

(C) Repairs for cleaning of blockage shall be done only when the shredder is shutdown and control devices locked.

(D) All power-driven mechanisms shall be guarded in accordance with section (3)(a) of this rule.

(b) Pulp conveyors. Pulp conveyors and conveyor drive belts and pulleys shall be fully enclosed, or if open and within 7 feet of the floor, shall be constructed and guarded in accordance with Subdivision N, Material Handling and Storage, and Subdivision O, Machinery and Machine Guarding.

(c) Floors, steps, and platforms. The requirements of section (3)(d) of this rule shall apply.

(d) Beaters.

(A) Beater rolls shall be provided with covers.

(B) Guardrails 42 inches high shall be provided around beaters where tub tops are less than 42 inches from the floor, in accordance with section (3)(d) of this rule and Subdivision D, Walking-Working Surfaces.

(C) When cleaning, inspecting, or other work requires that persons enter the beaters, all control devices shall be locked and tagged out, in accordance with 1910.147, Lockout, in Subdivision J.

(D) When beaters are fed from the floor above, the chute opening, if less than 42 inches from the floor, shall be provided with a complete rail or other enclosure. Openings for manual feeding shall be sufficient only for entry of stock and shall be provided with at least two permanently secured crossrails, in accordance with Subdivision D, Walking-Working Surfaces.

(E) Floors around beaters shall be provided with sufficient drainage to remove wastes.

(e) Pulpers.

(A) All pulpers having the top or any other opening of the vessel less than 42 inches from the floor or work platform shall have such openings guarded by railed or other enclosures. For manual charging, openings shall be sufficient only to permit the entry of stock and shall be provided with at least two permanently secured crossrails, in accordance with Subdivision D.

(B) When cleaning, inspecting or other work requires persons to enter the pulpers it shall be in accordance with 437-002-0146 Confined Spaces, in Subdivision J. All power mechanisms shall be guarded as required in Subdivision O, Machinery and Machine Guarding.

(C) Cleaning or inspecting pulpers or other work, including work above the pulper in a dangerous position, shall be in accordance with 1910.147, Lockout, in Subdivision J.

(D) All power mechanisms shall be guarded in accordance with Subdivision O, Machinery and Machine Guarding.

(f) Pulping devices. Emergency stop controls shall be provided at the feed point when pulping devices are fed manually from the floor above.

(g) Guillotine-type roll splitters. Rolls shall be centered and in a horizontal position directly below the guillotine-type blade while being split. No part of the body shall be under the guillotine-type blade.

(h) Stock chests and tanks.

(A) All control devices shall be locked when persons enter stock chests, in accordance with 1910.147, Lockout/Tagout, in Subdivision J.

(B) All power mechanisms shall be guarded in accordance with Subdivision O, Machinery and Machine Guarding.

(C) When cleaning, inspecting, or other work requires that persons enter stock chests, they shall be provided with a low-voltage extension light.

(12) Machine Room.

(a) Controls and safety devices.

- (A) Electrically or manually operated power disconnecting devices for all power-operated equipment shall be provided within easy reach of the operator while in his or her normal operating position. If necessary for safety of the operation, the machine shall be so equipped that retarding or braking action can be applied at the time of or after the source of power is deactivated.*
- (B) Pulp and paper machines shall be equipped with stopping devices. The devices shall be located where they can be used readily to stop the machines or sections of the machine. Power disconnect devices and retarding or braking controls provided for in section (12)(a)(A) of this rule are required for the safe operation of a pulp and paper machine.*
- (C) Brakes, back stops, antirunaway devices, overload releases, and other safety devices shall be inspected and tested frequently to insure that all are operative and maintained in good repair.*
- (D) An audible alarm shall be sounded prior to starting up any section of a pulp or paper machine. Sufficient time shall be allowed between activation of the alarm system and start-up of the equipment to allow any persons to clear the hazardous area.*
- (E) In starting up a dryer section, dryers shall be preheated and steam for heating the drums shall be introduced slowly, while the drums are revolving.*
- (F) Employees shall not attempt to remove a broken carrier rope from a dryer while the section is running at operating speed.*
- (G) Employees shall not feed a stack with any hand-held device which is capable of going through the nip.*
- (H) Employees shall stop dryer to remove a wrap except in cases where it can be safely removed by using air or other safe means.*
- (I) Special protective gloves shall be provided and shall be worn by employees when filing or handling sharp-edged doctor blades.*
- (J) Employees shall not place their hands between the sharp edge of an unloaded doctor blade and the roll while cleaning the doctor blade.*

- (K) The crane operator shall ascertain that reels are properly seated at winder stand or at reel arms before he or she disengages the hooks.*
- (L) Shaftless winders shall be provided with a barrier guard of sufficient strength and size to confine the rolls in the event they become dislodged while running.*
- (M) Employees shall keep clear of hazardous areas around the lowerator, especially all lowerator openings in a floor and where roll is being discharged.*
- (N) If a powered roll ejector is used it should be interlocked to prevent accidental actuation until the receiving platform or roll lowering table is in position to receive the roll.*
- (O) Provision shall be made to hold the rider roll when in a raised position unless counterbalancing eliminates the hazard.*
- (b) Drives.*
- (A) All drives, pulleys, couplings, and shafts on equipment requiring service while operating shall have standard guards in accordance with section (3)(a) of this rule.*
- (B) All drives shall be provided with lockout devices at the power switch which interrupts the flow of current to the unit.*
- (C) All ends of rotating shafts including dryer drum shafts shall be completely guarded.*
- (D) All accessible disengaged doctor blades should be covered.*
- (E) All exposed shafts shall be guarded. Crossovers shall be provided.*
- (F) Oil cups and grease fittings shall be placed in a safe area remote from nip and heat hazards.*
- (c) Protective equipment. Face shields, aprons and rubber gloves shall be provided for workers handling acids in accordance with sections (3)(c) and (5)(a) of this rule.*
- (d) Walkways. Steps and footwalks along the fourdrinier and press section shall have nonslip surfacing and be complete with standard handrails, when practical, in accordance with Subdivision D, Walking-Working Surfaces.*

- (e) *Steps. Steps of uniform rise and tread with nonslip surfaces shall be provided at each press in accordance with Subdivision D, Walking-Working Surfaces.*
- (f) *Plank walkways. A removable plank shall be provided along each press, with standard guardrails installed. The planks shall have nonslip surfaces in accordance with Subdivision D, Walking-Working Surfaces.*
- (g) *Dryer lubrication. If a gear bearing must be oiled while the machine is in operation, an automatic oiling device to protect the oiler shall be provided, or oil cups and grease fittings shall be placed along the walkways out of reach of hot pipes and dryer gears.*
- (h) *Levers. All levers carrying weights shall be constructed so that weights will not slip or fall off.*
- (i) *First dryer. Either a permanent guardrail or apron guard or both shall be installed in front of the first dryer in each section in accordance with Subdivision O, Machinery and Machine Guarding.*
- (j) *Steam and hot-water pipes. All exposed steam and hot-water pipes within 7 feet of the floor or working platform or within 15 inches measured horizontally from stairways, ramps, or fixed ladders shall be covered with an insulating material, or guarded in such manner as to prevent contact.*
- (k) *Dryer gears. Dryer gears shall be guarded except where the oilers' walkway is removed out of reach of the gears' nips and spokes and hot pipes in accordance with Subdivision O, Machinery and Machine Guarding.*
- (l) *Broke hole.*
- (A) *A guardrail shall be provided at broke holes in accordance with Subdivision D, Walking-Working Surfaces.*
- (B) *Where pulpers are located directly below the broke hole on a paper machine and where the broke hole opening is large enough to permit a worker to fall through, any employee pushing broke down the hole shall wear a safety belt and lanyard. The lanyard shall be fastened in such a manner that it is impossible for the person to fall into the pulper.*
- (C) *An alarm bell or a flashing light shall be actuated before dropping material through the broke hole.*
- (m) *Feeder belt. A feeder belt or other effective device shall be provided for starting paper through the calender stack.*

- (n) *Steps. Steps or ladders of uniform rise and tread with nonslip surfaces shall be provided at each calender stack. Handrails and hand grips shall be provided at each calender stack in accordance with Subdivision D, Walking-Working Surfaces.*
- (o) *Grounding. All calender stacks and spreader bars shall be grounded in accordance with Subdivision S, Electrical, as protection against shock induced by static electricity.*
- (p) *Sole plates. All exposed sole plates between dryers, calenders, reels, and rewinders shall have a nonskid surface.*
- (q) *Nip points. The hazard of the nip points on all calender rolls shall be eliminated or minimized by means of an effective barrier device, or by feeding the paper into the rolls by means of a rope carrier, air jets, or hand feeding devices.*
- (r) *Scrapers. Alloy steel scrapers with pullthrough blades approximately 3 by 5 inches in size shall be used to remove "scabs" from calender rolls.*
- (s) *Illumination. Permanent lighting shall be installed in all areas where employees are required to make machine adjustments and sheet transfers in accordance with American National Standard ANSI/IES RP-1990.*
- (t) *Control panels. All control panel handles and buttons shall be protected from accidental contact.*
- (u) *Lifting reels.*
- (A) *The reels shall stop rotating before being lifted from bearings.*
- (B) *All lifting equipment (clamps, cables, and slings) shall be maintained in a safe condition and inspected regularly.*
- (C) *Reel shafts with square block ends shall be guarded.*
- (v) *Feeder belts. Feeder belts, carrier ropes, air carriage, or other equally effective means shall be provided for starting paper into the nip or drum-type reels.*
- (w) *In-running nip.*
- (A) *Where the nipping points of all drum winders and rewinders is on the operator's side, it shall be guarded by barrier guards interlocked with the drive mechanism.*
- (B) *A zero speed switch or locking device shall be installed to prevent the guard from being raised, lowered, or removed while the roll is turning.*

- (x) Core collars. Set screws for securing core collars to winding and unwinding shafts shall not protrude above the face of the collar. All edges of the collar with which an operator's hand comes in contact shall be beveled to remove all sharp corners.*
- (y) Slitter knives. Slitter knives shall be guarded so as to prevent accidental contact. Carriers shall be provided and used for transportation of slitter knives.*
- (z) Winder shaft. The winder shall have a guide rail to align the shaft for easy entrance into the opened rewind shaft bearing housings.*
- (aa) Handling rolls, winders and core shafts. Mechanical handling equipment shall be provided for handling rolls, winder shafts, and core shafts that are too heavy for safe manual handling based on the NIOSH Work Practice Guide for Manual Lifting – 1981.*
- (bb) Winder area. A nonskid surface shall be provided in front of the winder to prevent accidental slipping.*
- (cc) Radiation. Special standards regarding the use of radiation equipment shall be posted and followed as required by 1910.1096, Ionizing Radiation, in Subdivision Z.*
- (13) Finishing Room.*
- (a) Cleaning rolls. Rolls shall be cleaned only on the outrunning side.*
- (b) Emergency stops. Electrically or manually operated quick power disconnecting devices, interlocked with braking action, shall be provided on all operating sides of the machine within easy reach of all employees. These devices shall be tested by making use of them when stopping the machine.*
- (c) Core collars. The requirements of section (12)(x) of this rule, and the requirements in Subdivision O, Machinery and Machine Guarding, shall apply.*
- (d) Elevators. These shall be in accordance with American National Standard ANSI/ASME A17.1-1990.*
- (e) Control panels. The requirements of section (12)(t) of this rule shall apply.*
- (f) Guillotine-type cutters.*

- (A) *Each guillotine-type cutter shall be equipped with a control which requires the operator and helper, if any, to use both hands to engage the clutch when operated from within reach of blade.*
- (B) *Each guillotine-type cutter shall be equipped with a nonrepeat device.*
- (C) *Carriers shall be provided and used for transportation of guillotine-type cutter knives.*
- (g) *Rotary cutter.*
- (A) *On single-knife machines a guard shall be provided at a point of contact to the knife.*
- (B) *On duplex cutters the protection required for single-knife machines shall be provided for the first knife, and a hood shall be provided for the second knife.*
- (C) *Safe access shall be provided to the knives of a rotary cutter by means of catwalks with nonslip surfaces, railings, and toeboards in accordance with Subdivision D, Walking-Working Surfaces.*
- (D) *A guard shall be provided for the spreader or squeeze roll at the nip side on sheet cutters.*
- (E) *Electrically or manually operated quick power disconnecting devices with adequate braking action shall be provided on all operating sides of the machine within easy reach of all operators.*
- (F) *The outside slitters shall be guarded.*
- (h) *Platers.*
- (A) *A guard shall be arranged across the face of the rolls to serve as a warning that the operator's hand is approaching the danger zone.*
- (B) *A quick power disconnecting device shall be installed on each machine within easy reach of the operator.*
- (i) *Finishing room rewinders.*
- (A) *The nipping points of all drum winders and rewinders located on the operator's side shall be guarded by either automatic or manually operated barrier guards of sufficient height to protect fully anyone working around them. The barrier guard shall be interlocked with the drive mechanism to prevent operating above jog speed without the guard in place. A zero speed switch should be installed to prevent the guard from being raised while the roll is turning.*

- (B) A nonskid surface shall be provided in front of the rewinder to prevent an employee from slipping in accordance with section (3)(d) of this rule.*
- (C) Mechanical lifting devices shall be provided for placing and removing rolls from the machine.*
- (j) Control panels. The requirements of section (12)(t) of this rule shall apply.*
- (k) Roll-type embosser. The nipping point located on the operator's side shall be guarded by either automatic or manually operated barrier guards interlocked with the drive.*
- (l) Converting machines.*
- (A) When using a crane or hoist to place rolls into a backstand and the operator cannot see both ends of the backstand, appropriate means will be implemented to eliminate hazards involved. The operator shall ascertain that rolls are properly seated at winder stand or at roll arms before he or she disengages the hooks.*
- (B) All power closing sections shall be equipped with an audible warning system which will be activated when closing the sections.*
- (C) Slitters, slotters, and scorers not in use shall be properly stored so as not to create a hazard.*
- (D) Mechanical handling equipment shall be provided for handling rolls or devices that are too heavy for safe manual handling based on the NIOSH Work Practice Guide for Manual Lifting – 1981.*
- (E) Sheer and pinch points. Sheer and pinch points at the feed mechanism shall be color-coded orange and/or identified by signs in accordance with Subdivision J, General Environmental Controls.*
- (m) Sorting and counting tables.*
- (A) Tables shall be smooth and free from splinters, with edges and corners rounded.*
- (B) Paddles shall be smooth and free from splinters.*
- (n) Roll splitters. The nip point and cutter knife shall be guarded by either automatic or manually operated barrier guards.*
- (o) Corrugators.*

- (A) Rails of rail-mounted devices such as roll stands shall be flush with the adjacent floor, and so installed to provide a minimum of 18 inches clearance between the equipment and walls or other fixed objects.*
 - (B) All corrugating and pressure rolls shall be equipped with appropriately designed and installed threading guides so as to prevent contact with the infeed nip of the various rolls by the operator.*
 - (C) Lower elevating conveyor belt rolls on the single facer bridge shall have a minimum nip clearance of 4 inches.*
 - (D) Web shears at the discharge end of the double facer shall be equipped with barrier-type guards.*
 - (E) Slitter stations not in use shall be disconnected from the power source by positive means.*
 - (F) The adhesive system shall be so designed and installed as to keep fumes and airborne dust within limits in accordance with OAR 437-002-0382, Oregon Rules for Air Contaminants, in Subdivision Z.*
- (14) Materials Handling.*
- (a) Hand trucks. No person shall be permitted to ride on a powered hand truck unless it is so designed by the manufacturer. A limit switch shall be on operating handle – 30° each way from a 45° angle up and down.*
 - (b) Power trucks. Power trucks shall comply with Subdivision N, Material Handling and Storage. Adequate ventilation shall be provided and the trucks properly maintained, so that dangerous concentrations of carbon monoxide cannot be generated, especially in warehouses or other isolated areas of a plant.*
 - (c) Carton-stitching machine. The carton-stitching machine shall be guarded to prevent the operator from coming in contact with the stitching head.*
 - (d) Banding of skids, cartons, cases, etc. Banders and helpers shall wear eye protection equipment in accordance with section (3)(c) of this rule.*
 - (e) Unloading cars or trucks.*
 - (A) Loading and unloading materials. Platforms with ladders or stairways shall be installed or alternative methods made available when needed so that workers may safely gain access to and perform work on the top of rail cars or trucks when ladders are not installed on such equipment.*

- (B) Where steel bands or wires are used in boxcars or trucks, all loaders and helpers shall wear eye protection in accordance with Subdivision I, Personal Protective Equipment.*
- (C) The construction and use of bridge or dock plates shall conform to the requirements of American National Standard B56.1-1988.*
- (D) Flag signals, derails, or other protective devices shall be used to protect workers during switching operations. The blue flag policy shall be invoked according to section (4)(j) of this rule.*

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

Stats. Implemented: ORS 654.001 to 654.295.

Hist: OR-OSHA Admin. Order 7-1994, f. 11/4/94, ef. 1/3/95.

OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98.

OR-OSHA Admin. Order 2-2001, f. 2/5/01, ef. 2/5/01.

OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.

OR-OSHA Admin. Order 6-2012, f. 9/28/12, ef. 4/1/13.

OR-OSHA Admin. Order 7-2013, f. 12/12/13, ef. 12/12/13.

OR-OSHA Admin. Order 2-2017, f. 5/16/17, ef. 11/1/17.

Appendix A (Non-Mandatory)

(1) Group Lockout/Tagout.

The group lockout/tagout procedures described in the Pulp and Paper standard require each authorized employee to be in control of potentially hazardous energy release during their servicing/maintenance work assignments. Under most circumstances, where servicing/maintenance is to be conducted during only one shift by an individual or a small number of persons working together, the installation of each individual's lockout/tagout device upon each energy isolating device would not be a burdensome procedure. However, when many energy sources or many persons are involved, and/or the procedure is to extend over more than one shift, (possibly several days, or weeks) consideration must be given to the implementation of a lockout/tagout procedure that will ensure the safety of the employees involved and will provide for each individual's control of the energy hazards. The following procedures are presented as examples to illustrate the implementation of a group lockout/tagout procedure involving many energy isolating devices and/or many servicing/maintenance personnel. They illustrate several alternatives for having authorized employees affix personal lockout/tagout devices in a group lockout/tagout setting. These examples are not intended to represent the only acceptable procedures for conducting group operations.

(2) Definitions. Various terms used in the examples are defined below.

- (a) Primary Authorized Employee is the authorized employee who exercises overall responsibility for adherence to the company lockout/tagout procedure. (See 1910.147 (f)(3)(ii)(A).)*
- (b) Principal Authorized Employee is an authorized employee who oversees or leads a group of servicing/maintenance workers (e.g., plumbers, carpenters, electricians, metal workers, mechanics).*
- (c) Job-Lock is a device used to ensure the continuity of energy isolation during a multi- shift operation. It is placed upon a lockbox. A key to the job-lock is controlled by each assigned primary authorized employee from each shift.*
- (d) Job-Tag with Tab is a special tag for tagout of energy isolating devices during group lockout/tagout procedures. The tab of the tag is removed for insertion into the lockbox. The company procedure would require that the tagout job-tag cannot be removed until the tab is rejoined to it.*

- (e) Master Lockbox is the lockbox into which all keys and tabs from the lockout or tagout devices securing the machine or equipment are inserted and which would be secured by a "job-lock" during multi-shift operations.*
 - (f) Satellite Lockbox is a secondary lockbox or lockboxes to which each authorized employee affixes his/her personal lock or tag.*
 - (g) Master Tag is a document used as an administrative control and accountability device.*
 - (h) Work Permit is a control document which authorizes specific tasks and procedures to be accomplished.*
- (3) Organization. A group lockout/tagout procedure might provide the following basic organizational structure:*
- (a) A primary authorized employee would be designated. This employee would exercise primary responsibility for implementation and coordination of the lockout/tagout of hazardous energy sources, for the equipment to be serviced.*
 - (b) The primary authorized employee would coordinate with equipment operators before and after completion of servicing and maintenance operations which require lockout/tagout.*
 - (c) A verification system would be implemented to ensure the continued isolation and de-energization of hazardous energy sources during maintenance and servicing operations.*
 - (d) Each authorized employee would be assured of his/her right to verify individually that the hazardous energy has been isolated and/or de-energized.*
 - (e) When more than one crew, craft, department, etc., is involved, each separate group of servicing/maintenance personnel would be accounted for by a principal authorized employee from each group. Each principal employee is responsible to the primary authorized employee for maintaining accountability of each worker in that specific group in conformance with the company procedure. No person may sign on or sign off for another person, or attach or remove another person's lockout/tagout device, unless the provisions of the exception to 1910.147(e)(3) are met.*

(4) Examples of Procedures for Group Lockout/Tagout. Examples are presented for the various methods of lockout/tagout using lockbox procedures. An example of an applicable method for complex process equipment is also presented.

The following procedures address circumstances ranging from a small group of servicing/maintenance employees during a one-shift operation to a comprehensive operation involving many workers over a longer period.

- (a) Type A. Each authorized employee places his/her personal lock upon each energy isolating device and removes it upon departure from that assignment. Each authorized employee verifies or observes the deenergization of the equipment.*
- (b) Type B. Under a lockbox procedure, a lock is placed upon each energy isolation device after de-energization. The key(s) are then placed into a lockbox. Each authorized employee assigned to the job then affixes his/her personal lock to the lockbox. As a member of a group, each assigned authorized employee verifies that all hazardous energy has been rendered safe. The lockout/tagout devices cannot be removed or the energy isolating device turned on until the appropriate key is matched to its lock.*
- (c) Type C. After each energy isolating device is locked/tagged out and the keys placed into a master lockbox, each servicing/maintenance group "principal" authorized employee places his/her personal lock upon the master lockbox. Then each principal authorized employee inserts his/her key into a satellite lockbox to which each authorized employee in that specific group affixes his/her personal lock. As a member of a group, each assigned authorized employee verifies that all hazardous energy has been rendered safe. Only after the servicing/maintenance functions of the specific subgroup have been concluded and the personal locks of the respective employees have been removed from the satellite lockbox can the principal authorized employee remove his/her lock from the master lockbox.*

(d) Type D. During operations to be conducted over more than one shift (or even many days or weeks) a system such as described here might be used. Single locks/tags are affixed upon a lockbox by each authorized employee as described at Type B or Type C above. The master lockbox is first secured with a job-lock before subsequent locks by the principal authorized employees are put in place on the master lockbox. The job-lock may have multiple keys if they are in the sole possession of the various primary authorized employees (one on each shift). As a member of a group, each assigned authorized employee verifies that all hazardous energy has been rendered safe. In this manner, the security provisions of the energy control system are maintained across shift changes while permitting reenergization of the equipment at any appropriate time or shift.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 to 654.295.
Hist: OR-OSHA Admin. Order 7-1994, f. 11/4/94, ef. 1/3/95.

Appendix B (Non-Mandatory) - Lockout/Tagout Permit Procedure Model Procedure

I. Policy

It is the policy of _____ to provide a safe and healthful work environment. All individuals performing work where they may be exposed to the unexpected or unwanted start-up of equipment or the release of hazardous energy, are required to be adequately trained and protected from such hazards.

This permit lockout/tagout procedure applies to all individuals or groups requiring lockout/ tagout protection while performing work on specific equipment for which there is no established written procedure available. Each Department Manager is responsible for implementing and enforcing these procedures for all areas and equipment under his/her control.

II. Purpose

The purpose of this permit procedure is to ensure that all appropriate steps are taken to control hazardous energies in the absence of a formal written procedure. The intent is to prevent injury or death from exposure to hazardous energies.

III. Definitions

Affected Employees are operators and others who need to be notified of work being performed, equipment being locked out, or energy being restored in their work area or area of responsibility, but who have not locked out.

Authorized Employees are employees assigned to perform work that requires protection under the lockout/tagout policy, and who have locked out.

Hazardous Energy means any level of energy present that can cause unexpected or unwanted movement, activation, flow, or exposure that could result in injury. Sources may include:

- (1) Electrical: Alternating and direct current sources, static electricity or stored electrical energy in devices such as capacitors.*
- (2) Chemical: Energy released through direct contact or by combining chemical substances.*
- (3) Thermal: Heat generated from electrical, combustion, chemical, mechanical (friction), or nuclear sources.*

- (4) Pneumatic: Gaseous systems operating at positive (compressed) or negative (vacuum) pressures.*
- (5) Radiation: Ionizing sources including alpha, beta, neutron, gamma, and x-ray. Non-ionizing sources including ultraviolet, infrared, microwave and visible light.*
- (6) Hydraulic: Fluids pressurized to perform work.*
- (7) Mechanical Potential: Movement of a body or an object by gravity, spring or striking force.*

Lockout Overseer means the qualified person designated by the company to verify compliance with requirements of the lockout procedure.

Lockbox means the device used to secure the primary lock key(s) used in a group lockout procedure.

Personal Lock means the locking device used by an employee to secure potentially hazardous energy for his/her personal protection.

Primary Lock (Lockbox Lock) means the locking device used to lock out each energy source in a group lockout procedure.

Responsible Person means an employee thoroughly knowledgeable with the equipment to be locked out, and designated by the company to place primary locks on energy sources for group lockout.

Secondary Lock means a personal lock used to secure a lockbox in a group lockout procedure.

Transfer of Custody means the transfer of responsibility from one Responsible Person and/or Lockout Overseer to another at the end of his/her work period.

IV. General Requirements

The lockout/tagout rule requires procedures be developed, documented and utilized for the control of potentially hazardous energy. The lockout/tagout permit procedure provides employees the means to develop and document energy control procedures as they are needed. By following the steps outlined in this policy, all requirements for utilizing a written energy control procedure will be met.

Exception: The procedure need not be documented for a particular machine or equipment, when all of the following elements exist:

- (1) The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down which could endanger employees;*
- (2) the machine or equipment has a single energy source which can be readily identified and isolated;*
- (3) the isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment;*
- (4) the machine or equipment is isolated from that energy source and locked out during servicing or maintenance;*
- (5) a single lockout device will achieve a locked-out condition;*
- (6) the lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance;*
- (7) the servicing or maintenance does not create hazards for other employees; and*
- (8) the employer, in utilizing this exception, has had no accidents involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.*
 - A. If a written procedure is required but not available, the employees will not start work until a lockout permit is completed and approved.*
 - B. The department where the work is to be performed is responsible for assigning a Lockout Overseer to verify compliance with the permit procedure requirements.*
 - C. One person, thoroughly knowledgeable with the equipment and the hazardous energies involved will be designated as the Responsible Person.*
 - D. The Lockout Overseer will accompany the Responsible Person while completing the permit requirements.*
 - E. Each personal lock shall be labeled identifying the worker.*
 - F. The completed permit will be available at the job site or at the group lockout device while employees are working on the equipment.*

V. Additional Requirements for Group Lockout

- A. The Responsible Person will place the first "secondary lock" on the lockbox.*

- B. The Lockout Overseer will place the second "secondary lock" on the lockbox.*
- C. Each individual has the right to verify the lockout of all energy sources and/or to place his/her own personal lock on each lockout point.*
- D. Each authorized employee must have his or her personal lock on the lockbox while working on the affected equipment.*
- E. Whenever there is a transfer of custody, the replacement(s) will verify that the primary locks are properly placed.*
- F. When the work is complete and all other secondary locks are removed, the Responsible Person will verify that the area is clear before removing his/her secondary lock and primary locks.*
- G. When contractors use a lockbox, the contractor supervisor will be a Lockout Overseer.*
- H. Lockbox Locks are to be unique primary locks and so identified.*

VI. Permit Procedure

The LOCKOUT PERMIT (see attachment A) is completed in the following steps:

- A. Determine the type of lockout to be performed (group lockout or individual lockout) and check the appropriate box on the permit. When group lockout is used the Responsible Person and Lockout Overseer, in addition to developing the lockout procedure, will also place the primary locks and verify energy isolation.*
- B. Fill in the date that the permit is issued.*
- C. Name or describe the equipment or system to be locked out.*
- D. Determine the scope of the work to be done, and indicate this on the permit. (For example: To replace carbon rings on dryer cans #1 through #25.)*
- E. Name the Lockout Overseer and Responsible Person on the permit. (Please Print)*
- F. Identify the affected employees to be notified before the lockout begins and those to be notified before energy is restored.*
- G. If equipment is being locked out at this time, verify the equipment has been shut down using proper shutdown procedures. List any special procedures to be used for shutdown or start up.*

- H. Indicate the type(s) of potential hazardous energy which may be present.*
- I. Identify each energy source, equipment identification, lockout location and proper status. See example below.*
- J. Identify how energy isolation is verified, and perform test. (i.e. start test, drain valve, pressure gauge, voltage check).*
- K. If the LOCKOUT PERMIT is used to perform a group lockout, the initials of the Lockout Overseer and Responsible Person are required to indicate each isolation point has been properly locked out and energy isolation verified.*
- L. If the LOCKOUT PERMIT is used for personal lockout, each Authorized Employee shall initial the identified energy sources after each has been locked/tagged and energy isolation verified.*
- M. Each Authorized Employee will sign-on after they place their locks on the equipment or group lockout device, and sign-off after they remove their locks.*
- N. Return To Service steps are checked after each is completed. (Work Area Inspected, Affected Employees Notified, Locks Removed, Energy Restored, Control Returned to Operator.)*
- O. The name of the person the permit is returned to.*
- P. Permits shall be held by the company for a minimum of 6 months from the date of issue.*

Stat. Auth.: ORS 654.025(2) and 656.726(4).
 Stats. Implemented: ORS 654.001 to 654.295.
 Hist: OR-OSHA Admin. Order 7-1994, f. 11/4/94, ef. 1/3/95.

Energy Source	Equip. ID	Lockout Location	Status	Resp. Person	Lockout Overseer	Tested
160# Steam Header	V1301-B	#3 P.M. Basement	Close, Lock, Drain	J.D.	S.Q.	X
Electrical	Str.#1234	Basement Load Center	Close, Lock, Check Voltage	J.D.	S.Q.	X

Lockout Permit

Lockout Type: Group Lockbox Individual Issue Date: _____
 Equipment to be Locked Out: _____
 Work to be Performed: _____
 Lockout Overseer: _____ Responsible Person: _____
(Please Print) (Please Print)
 Affected Employee to be Notified: _____

 Shutdown Procedure Completed Special Procedure _____

 Energy Source: () Electrical () Chemical () Thermal () Pneumatic () Radiation () Hydraulic
 () Mechanical Potential () Other: _____

Attachment (A)

Authorized Employee:	Time-on	Time-off

Energy Source	Equipment ID	Lockout Location	Status	Authorized Employees (initial each item locked)								For group lockout		
												Resp. Person	Lockout Overseer	Tested

Return to Service Procedure: () Work Area Inspected () Affected Employee Notified () Locks Removed () Control Returned to Operator () Other: _____

 Return Permit to _____

1910.262 Textiles

(a) Application requirements.

- (1) **Application.** The requirements of this subpart for textile safety apply to the design, installation, processes, operation, and maintenance of textile machinery, equipment, and other plant facilities in all plants engaged in the manufacture and processing of textiles, except those processes used exclusively in the manufacture of synthetic fibers.
- (2) **Standards incorporated by reference.** Standards covering issues of occupational safety and health which are of general application without regard to any specific industry are incorporated by reference in paragraphs of this section and made applicable to textiles. All such standards shall be construed according to the rules of construction set out in 1910.5.

(b) Definitions applicable to this section.

- (1) **Belt shifter.** A belt shifter is a device for mechanically shifting a belt from one pulley to another.
- (2) **Belt shifter lock.** A belt shifter lock is a device for positively locking the belt shifter in position while the machine is stopped and the belt is idling on the loose pulleys.
- (3) **Calender.** A calender in essence consists of a set of heavy rollers mounted on vertical side frames and arranged to pass cloth between them. Calenders may have two to ten rollers, or bowls, some of which can be heated.
- (4) **Embossing calender.** An embossing calender is a calender with two or more rolls, one of which is engraved for producing figured effects of various kinds on a fabric.
- (5) **Cans (drying).** Drying cans are hollow cylindrical drums mounted in a frame so they can rotate. They are heated with steam and are used to dry fabrics or yarn as it passes around the perimeter of the can.
- (6) **Carbonizing.** Carbonizing means the removing of vegetable matter such as burns, straws, etc., from wool by treatment with acid, followed by heat. The undesired matter is reduced to a carbon-like form which may be removed by dusting or shaking.

- (7) **Card.** A card machine consists of cylinders of various sizes – and in certain cases flats – covered with card clothing and set in relation to each other so that fibers in staple form may be separated into individual relationship. The speed of the cylinders and their direction of rotation varies. The finished product is delivered as a sliver. Cards of different types are: The revolving flat card, the roller-and-clearer card, etc.
- (8) **Card clothing.** Card clothing is the material with which many of the surfaces of a card are covered; e.g., the cylinder, doffer, etc. It consists of a thick foundation material, usually made of textile fabrics, through which are pressed many fine, closely spaced, specially bent wires.
- (9) **Comber.** A comber is a machine for combing fibers of cotton, wool, etc. The essential parts are a device for feeding forward a fringe of fibers at regular intervals and an arrangement of combs or pins which, at the right time, pass through the fringe. All tangled fibers, short fibers, and neps are removed and the long fibers are laid parallel.
- (10) **Combing machinery.** Combing machinery is a general classification, including combers, sliver lap machines, ribbon lap machines, and gill boxes, but excluding cards.
- (11) **Cutter (rotary staple).** A rotary staple cutter is a machine consisting of one or more rotary blades used for the purpose of cutting textile fibers into staple lengths.
- (12) **Exposed to contact.** Exposed to contact shall mean that the location of an object, material, nip point, or point of operation is such that a person is liable to come in contact with it in his normal course of employment.
- (13) **Garnett machine.** A Garnett machine means any of a number of types of machines for opening hard twisted waste of wool, cotton, silk, etc. Essentially, such machines consist of a lickerin; one or more cylinders, each having a complement worker and stripper rolls; and a fancy roll and doffer. The action of such machines is somewhat like that of a wool card, but it is much more severe in that the various rolls are covered with garnett wire instead of card clothing.
- (14) **Gill box.** A gill box is a machine used in the worsted system of manufacturing yarns. Its function is to arrange the fibers in parallel order. Essentially, it consists of a pair of feed rolls and a series of followers where the followers move at a faster surface speed and perform a combing action.

- (15) **Interlock.** An interlock is a device that operates to prevent the operation of machine while the cover or door of the machine is open or unlocked, and which will also hold the cover or door closed and locked while the machine is in motion.
- (16) **Jig (dye).** A dye jig is a machine for dyeing piece goods. The cloth, at full width, passes from a roller through the dye liquor in an open vat and is then wound on another roller. The operation is repeated until the desired shade is obtained.
- (17) **Kier.** A kier is a large metal vat, usually a pressure type, in which fabrics may be boiled out, bleached, etc.
- (18) **Lapper (ribbon).** A ribbon lapper is a machine used to prepare laps for feeding a cotton comb; its purpose is to provide a uniform lap in which the fibers have been straightened as much as possible.
- (19) **Lapper (sliver).** A sliver lapper is a machine in which a number of parallel card slivers are drafted slightly, laid side by side in a compact sheet, and wound into a cylindrical package.
- (20) **Loom.** A loom is a machine for effecting the interlacing of two series of yarns crossing one another at right angles. The warp yarns are wound on a warp beam and pass through heddles and reed. The filling is shot across in a shuttle and settled in place by reed and lay, and the fabric is wound on a cloth beam.
- (21) **Mangle (starch).** A starch mangle is a mangle that is used specifically for starching cotton goods. It commonly consists of two large rolls and a shallow open vat with several immersion rolls. The vat contains the starch solution.
- (22) **Mangle (water).** A water mangle is a calender having two or more rolls used for squeezing water from fabrics before drying. Water mangles also may be used in other ways during the finishing of various fabrics.
- (23) **Mule.** A mule is a type of spinning frame having a head stock and a carriage as its two main sections. The head stock is stationary. The carriage is movable and it carries the spindles which draft and spin the roving into the yarn. The carriage extends over the whole width of the machine and moves slowly toward and away from the head stock during the spinning operation.
- (24) **Nip.** Nip shall mean the point of contact between two in-running rolls.

- (25) **Openers and pickers.** Openers and pickers means a general classification which includes breaker pickers, intermediate pickers, finisher pickers, single process pickers, multiple process pickers, willow machines, card and picker waste cleaners, thread extractors, shredding machines, roving waste openers, shoddy pickers, bale breakers, feeders, vertical openers, lattice cleaners, horizontal cleaners, and any similar machinery equipped with either cylinders, screen section, calender section, rolls, or beaters used for the preparation of stock for further processing.
- (26) **Paddler.** A paddler consists of a trough for a solution and two or more squeeze rolls between which cloth passes after being passed through a mordant or dye bath.
- (27) **Point of operation.** Point of operation shall mean that part of the machine where the work of cutting, shearing, squeezing, drawing, or manipulating the stock in any other way is done.
- (28) **Printing machine (roller type).** A roller printing machine is a machine consisting of a large central cylinder, or pressure bowl, around the lower part of the perimeter of which is placed a series of engraved color rollers (each having a color trough), a furnisher roller, doctor blades, etc. The machine is used for printing fabrics.
- (29) **Ranges (bleaching continuous).** Continuous bleaching ranges are of several types and may be made for cloth in rope or open-width form. The goods, after wetting out, pass through a squeeze roll into a saturator containing a solution of caustic soda and then to an enclosed J-box. A V-shaped arrangement is attached to the front part of the J-box for uniform and rapid saturation of the cloth with steam before it is packed down in the J-box. The cloth, in a single strand rope form, passes over a guide roll down the first arm of the "V" and up the second. Steam is injected into the "V" at the upper end of the second arm so that the cloth is rapidly saturated with steam at this point. The J box capacity is such that cloth will remain hot for a sufficient time to complete the scouring action. It then passes a series of washers with a squeeze roll in between. The cloth then passes through a second set of saturator, J-box, and washer, where it is treated with the peroxide solution. By slight modification of the form of the unit, the same process can be applied to open-width cloth.

- (30) **Range (mercerizing).** A mercerizing range consists generally of a 3-bowl mangle, a tenter frame, and a number of boxes for washing and scouring. The whole setup is in a straight line and all parts operate continuously. The combination is used to saturate the cloth with sodium hydroxide, stretch it while saturated, and washing out most of the caustic before releasing tension.
- (31) **Sanforizing machine.** A sanforizing machine is a machine consisting of a large steam-heated cylinder, an endless, thick, woolen felt blanket which is in close contact with the cylinder for most of its perimeter, and an electrically heated shoe which presses the cloth against the blanket while the latter is in a stretched condition as it curves around feed-in roll.
- (32) **Shearing machine.** A shearing machine is a machine used in shearing cloth. Cutting action is provided by a number of steel blades spirally mounted on a roller. The roller rotates in close contact with a fixed ledger blade. There may be from one to six such rollers on a machine.
- (33) **Singeing machine.** A singeing machine is a machine used particularly with cotton; it comprises of a heated roller, plate, or an open gas flame. The material is rapidly passed over the roller or the plate or through the open gas flame to remove, fuzz or hairiness on yarn or cloth by burning.
- (34) **Slasher.** A slasher is a machine used for applying a size mixture to warp yarns. Essentially, it consists of a stand for holding section beams, a size box, one or more cylindrical dryers or an enclosed hot air dryer, and a beaming end for finding the yarn on the loom beams.
- (35) **Solvent (industrial organic).** Industrial organic solvent means any organic volatile liquid or compound, or any combination of these substances which are used to dissolve or suspend a nonvolatile or slightly volatile substance for industrial utilization. It shall also apply to such substances when used as detergents or cleansing agents. It shall not apply to petroleum products when such products are used as fuel.
- (36) **Tenter frame.** A tenter frame is a machine for drying cloth under tension. It essentially consists of a pair of endless traveling chains fitted with clips of fine pins and carried on tracks. The cloth is firmly held at the selvages by the two chains which diverge as they move forward so that the cloth is brought to the desired width.
- (37) **Warper.** A warper is any machine for preparing and arranging the yarns intended for the warp of a fabric, specifically, a beam warper.

(c) General safety requirements.

- (1) Means of stopping machines. Every textile machine shall be provided with individual mechanical or electrical means for stopping such machines. On machines driven by belts and shafting, a locking-type shifter or an equivalent positive device shall be used. On operations where injury to the operator might result if motors were to restart after power failures, provision shall be made to prevent machines from automatically restarting upon restoration of power.
 - (2) Handles. Stopping and starting handles shall be designed to the proper length to prevent the worker's hand or fingers from striking against any revolving part, gear guard, or any other part of the machine.
 - (3) Reserved.
 - (4) Reserved.
 - (5) Inspection and maintenance. All guards and other safety devices, including starting and stopping devices, shall be properly maintained.
 - (6) Lighting. Lighting shall conform to American National Standard A11.1-1965, which is incorporated by reference as specified in 1910.6.
 - (7) Identification of piping systems. Identification of piping systems shall conform to American National Standard A13.1-1956, which is incorporated by reference as specified in 1910.6.
 - (8) Identification of physical hazards. Identification of physical hazards shall be in accordance with the requirements of 1910.144.
 - (9) Steam pipes. All pipes carrying steam or hot water for process or servicing machinery, when exposed to contact and located within 7 feet of the floor or working platform shall be covered with a heat-insulating material, or otherwise properly guarded.
- (d) Openers and pickers.
- (1) Beater guards. When any opening or picker machinery is equipped with a beater, such beater shall be provided with metal covers which will prevent contact with the beater. Such covers shall be provided with an interlock which will prevent the cover from being raised while the machine is in motion and prevent the operation of the machine while the cover is open.
 - (2) Cleanout holes. Cleanout holes within reaching distance of the fan or picker beater shall have their covers securely fastened and they shall not be opened while the machine is in motion.

- (3) Feed rolls. The feed rolls on all opening and picking machinery shall be covered with a guard designed to prevent the operator from reaching the nip while the machinery is in operation.
 - (4) Removal of foreign ferrous material. All textile opener lines shall be equipped with magnetic separators, tramp iron separators, or other means for the removal of foreign ferrous material.
- (e) Cotton cards.
- (1) Enclosures. Cylinder and lickerins shall be completely protected and the doffers should be enclosed.
 - (2) Enclosure fastenings. The enclosures or covers shall be kept in place while the machine is in operation, except when stripping or grinding.
 - (3) Stripping rolls. On operations calling for flat strippings which are allowed to fall on the doffer cover, where such strippings are removed by hand, the doffer cover shall be kept closed and securely fastened to prevent the opening of the cover while the machine is in operation. When it becomes necessary to clean the cards while they are in motion, a long-handled brush or dust mop shall be used.
- (f) Garnett machines.
- (1) Lickerin. Garnett lickerins shall be enclosed.
 - (2) Fancy rolls. Garnett fancy rolls shall be enclosed by covers. These shall be installed in a way that keeps worker rolls reasonably accessible for removal or adjustment.
 - (3) Underside of machine. The underside of the garnett shall be guarded by a screen mesh or other form of enclosure to prevent access.
- (g) Spinning mules. A substantial fender of metal or hardwood shall be installed in front of the carriage wheels, the fender to extend to within one-fourth inch of the rail.
- (h) Slashers.
- (1) Cylinder dryers.
 - (i) Reducing valves, safety valves, and pressure gages. Reducing valves, safety valves, and pressure gages shall conform to the ASME Pressure Vessel Code, Section VIII, Unfired Pressure Vessels, 1968, which is incorporated by reference as specified in 1910.6.

- (ii) Vacuum relief valves. Vacuum relief valves shall conform to the ASME Code for Pressure Vessels, Section VIII, Unfired Pressure Vessels, 1968.
 - (iii) Lever control. When slashers are operated by control levers, these levers shall be connected to a horizontal bar or treadle located not more than 69 inches above the floor to control the operation from any point.
 - (iv) Pushbutton control. Slashers operated by pushbutton control shall have stop and start buttons located at each end of the machine, and additional buttons located on both sides of the machine, at the size box and the delivery end. If calender rolls are used, additional buttons shall be provided at both sides of the machine at points near the nips, except when slashers are equipped with an enclosed dryer.
 - (v) Nip guards. All nip guards shall comply with the requirements of paragraph (h)(2)(iv) of this section.
 - (vi) Cylinder enclosure. When enclosures or hoods are used over cylinder drying rolls, such enclosures or hoods shall be provided with an exhaust system which will effectively prevent wet air and steam from escaping into the workroom.
 - (vii) Expansion chambers. Slasher kettles and cookers shall be provided with expansion chambers in the covers, or drains, to prevent surging over. Steam-control valves shall be so located that they can be operated without exposing the worker to moving parts, hot surfaces, or steam.
- (2) Enclosed hot air dryer.
- (i) Lever control. When slashers are operated by control levers, these levers shall be connected to a horizontal bar or treadle located not more than 69 inches above the floor to control the operation from any point.
 - (ii) Push-button control. Slashers operated by push-button control shall have one start button at each end of the machine and stop buttons shall be located on both sides of the machines at intervals spaced not more than 6 feet on centers. Inching buttons should be installed.
 - (iii) Dryer enclosure. The dryer enclosure shall be provided with an exhaust system which will effectively prevent wet air and steam from escaping into the workroom.

(iv) Nip guards. All nip guards shall comply with Table R-1.

Table R 1 - Guard Openings

(Openings in the guard or between the guard and working surface shall not be greater than the following)

Distance of opening from nip point	Maximum width of opening
0 to 1-1/2	1/4
1-1/2 to 2-1/2	3/8
2-1/2 to 3-1/2	1/2
3-1/2 to 5-1/2	5/8
5-1/2 to 6-1/2	3/4
6-1/2 to 7-1/2	7/8
7-1/2 to 8-1/2	1-1/4

The measurements in Table R-1 are all in inches.

(v) Expansion chambers. Slasher kettles and cookers shall be provided with expansion chambers in the covers, or drains, to prevent surging over. Steam control valves shall be so located that they can be operated without exposing the worker to moving parts, hot surfaces, or steam.

(i) Warpens.

(1) Swiveled double-bar gates. Swiveled double-bar gates shall be installed on all warpens operating in excess of 450 yards per minute. These gates shall be so interlocked that the machine cannot be operated until the gate is in the "closed position," except for the purpose of inching or jogging.

(2) Closed position. "Closed position" shall mean that the top bar of the gate shall be at least 42 inches from the floor or working platform; and the lower bar shall be at least 21 inches from the floor or working platform; and the gate shall be located 15 inches from the vertical tangent to the beam head.

(j) Drawing frames, slubbers, roving parts, cotton combers, ring spinning frames, twistens. Gear housing covers on all installations of drawing frames, slubbers, roving frames, cotton combers, ring spinning frames, and twistens shall be equipped with interlocks.

(k) Gill boxes.

(1) Pin guard. A guard shall be placed ahead of the feed end and shall be so designed that it will prevent the worker's fingers from being caught in the pins of the intersecting fallers.

- (2) Nip guards. All nip guards shall comply with the requirements of paragraph (h)(2)(iv) of this section.
- (l) Heavy draw boxes, finishers, and speeders used in worsted drawing.
- (1) Band pulley covers. Covers for band pulleys shall be closed when the machine is in motion.
- (2) Benches or working platforms. Benches or working platforms approximately 10 inches in height and 8 inches in width should be installed along the entire running length of the machine for the worker to stand on while creeling the machine. Such benches or platforms shall be covered with an abrasive or nonslip material.
- (m) Sliver and ribbon lappers (cotton). Cover guard. An interlocking cover guard shall be installed over the large calender drums and the lap spool, designed to prevent the operator from coming in contact with the nip.
- (n) Looms.
- (1) Shuttle guard. Each loom shall be equipped with a guard designed to minimize the danger of the shuttle flying out of the shed.
- (2) Protection for loom fixer. Provisions shall be made so that every loom fixer can prevent the loom from being started while he is at work on the loom. This may be accomplished by means of a lock, the key to which is retained in the possession of the loom fixer, or by some other effective means to prevent starting the loom.
- (o) Shearing machines. All revolving blades on shearing machines shall be guarded so that the opening between the cloth surface and the bottom of the guard will not exceed three-eighths inch.
- (p) Continuous bleach range (cotton and rayon).
- (1) J-box protection. Each valve controlling the flow of steam, injurious gases, or liquids into a J-box shall be equipped with a chain, lock, and key, so that any worker who enters the J-box can lock the valve and retain the key in his possession. Any other method which will prevent steam, injurious gases, or liquids from entering the J box while the worker is in it will be acceptable.
- (2) Open-width bleaching. The nip of all in-running rolls on open-width bleaching machine rolls shall be protected with a guard to prevent the worker from being caught at the nip. The guard shall extend across the entire length of the nip.

(q) Kiers.

(1) Reducing valves, safety valves, and pressure gages. Reducing valves, safety valves, and pressure gages shall conform to the ASME Code for Unfired Pressure Vessels, Section VIII, Unfired/Pressure Vessels, 1968.

(2) Kier valve protection. Each valve controlling the flow of steam, injurious gases, or liquids into a kier shall be equipped with a chain, lock, and key, so that any worker who enters the kier can lock the valve and retain the key in his possession. Any other method which will prevent steam, injurious gases, or liquids from entering the kier while the worker is in it will be acceptable.

(r) Gray and white bins. On new installations guardrails that comply with Subpart D of this part shall be provided where workers are required to plait by hand from the top of the bin so as to protect the worker from falling to a lower level.

(s) Mercerizing range (piece goods).

(1) Stopping devices. A stopping device shall be provided at each end of the machine.

(2) Frame ends. A guard shall be installed at each end of the frame between the in-running chain and the clip opener, to prevent the worker's fingers from being caught.

(3) Mangle and washers. The nip at the in-running rolls shall conform to 1910.264.

(t) Tenter frames.

(1) Stopping devices. A stopping device shall be provided at each end of the machine.

(2) Frame ends. A guard shall be installed at each end of the frame at the in-running chain and clip opener.

(3) Oil cups. Oil cups shall be safely located to permit easy access.

(u) Dyeing jigs.

(1) Stopping devices. Each dye jig shall be equipped with individual mechanical or electrical means for stopping the machine.

(2) Roll arms. Roll arms on jigs shall be built to allow for extra large batches, and to prevent the center bar from being forced off, causing the batch to fall.

- (v) Padders - Nip guards. All nip guards shall comply with the requirements of paragraph (h)(2)(iv) of this section.
- (w) Drying cans.
- (1) Pressure reducing valves and pressure gages. Pressure reducing valves and pressure gages shall conform to the ASME Code for Pressure Vessels, Section VIII, 1968, Unfired Pressure Vessels.
 - (2) Vacuum collapse. If cans are not designed to prevent vacuum collapse, each can shall be equipped with one or more vacuum relief valves with openings of sufficient size to prevent the collapse of the can if vacuum occurs.
- (x) Flat-work ironer.
- (1) Feed rolls. The feed rolls shall be guarded to conform to 1910.264.
 - (2) Pressure rolls. Pressure rolls shall be covered or guarded to conform to 1910.264.
- (y) Extractors.
- (1) Centrifugal extractor.
 - (i) Cover. Each extractor shall be equipped with a metal cover.
 - (ii) Interlocking device. Each extractor shall be equipped with an interlocking device that will prevent the cover from being opened while the basket is in motion, and also prevent the power operation of the basket while the cover is open.
 - (iii) Brakes. Each extractor shall be equipped with a mechanically or electrically operated brake to quickly stop the basket when the power driving the basket is shut off.
 - (iv) Maximum allowable speed. Each centrifugal extractor shall be effectively secured in position on the floor or foundation so as to eliminate unnecessary vibration, and should not be operated at a speed greater than the manufacturer's rating, which shall be stamped where easily visible in letters not less than one-quarter inch in height. The maximum allowable speed shall be given in revolutions per minute (rpm).
 - (2) Engine drum extractor - Over-speed governor. Each engine individually driving an extractor shall be provided with an approved engine stop and speed limit governor.

- (3) Squeezer or wringer extractor - Nip guards. All nip guards shall comply with the requirements of paragraph (h)(2)(iv) of this section.
- (z) Nip guards. All nip guards for water mangle, starch mangle, back-washer (worsted yarn) crabbing machines, decating machines, shall comply with the requirements of paragraph (h)(2)(iv).
- (aa) Sanforizing and palmer machine. A safety trip rod, cable, or wire center cord shall be provided across the front and back of all palmer cylinders extending the length of the face of the cylinder. It shall operate readily whether pushed or pulled. This safety trip shall be not more than 72 inches above the level on which the operator stands and shall be readily accessible.
- (bb) Rope washers.
- (1) Splash guard. Splash guards shall be installed on all rope washers unless the machine is so designed as to prevent the water or liquid from splashing the operator, the floor, or working surface.
- (2) Safety stop bar. A safety trip rod, cable or wire center cord shall be provided across the front and back of all rope washers extending the length of the face of the washer. It shall operate readily whether pushed or pulled. This safety trip shall be not more than 72 inches above the level on which the operator stands and shall be readily accessible.
- (cc) Laundry washer tumbler or shaker.
- (1) Interlocking device. Each drying tumbler, each double cylinder shaker or clothes tumbler, and each washing machine shall be equipped with an interlock device which will prevent the power operation of the inside cylinder when the outer door on the case or shell is open, and which will also prevent the outer door on the case or shell from being opened without shutting off the power.
- (2) Means of holding covers or doors in open position. Each enclosed barrel shall also be equipped with adequate means for holding open the doors or covers of the inner and outer cylinders or shells while it is being loaded or unloaded.
- (dd) Printing machine (roller type).
- (1) Nip guards. All nip guards shall comply with the requirements of paragraph (h)(2)(iv) of this section.

- (2) Crown wheel and roller gear nip protection. The engraved roller gears and the large crown wheel shall be provided with a protective disc which will enclose the nips of the in-running gears. Individual discs for each nip will be acceptable.
- (ee) Calenders. The nip at the in-running side of the rolls shall be provided with a guard extending across the entire length of the nip and arranged to prevent the fingers of the workers from being pulled in between the rolls or between the guard and the rolls, and constructed so that the cloth can be fed into the rolls safely.
- (ff) Rotary staple cutters. A guard shall be installed completely enclosing the cutters to prevent the hands of the operator from reaching the cutting zone.
- (gg) Reserved.
- (hh) Hand bailing machine. An angle-iron-handle stop guard shall be installed at the right angle to the frame of the machine. The stop guard shall be so designed and so located that it will prevent the handle from traveling beyond the vertical position should the handle slip from the operator's hand when the pawl has been released from the teeth of the takeup gear.
- (ii) Roll bench. Cleats shall be installed on the ends of roll benches.
- (jj) Cuttle or swing folder (overhead type). The bottom of the overhead folders shall be located not less than 7 feet from the floor or working surface.
- (kk) Color-mixing room. Floors in color-mixing rooms shall be constructed to drain easily.
- (ll) Open tanks and vats for mixing and storage of hot or corrosive liquids. Shutoff valves. Boiling tanks, caustic tanks, and hot liquid containers, so located that the operator cannot see the contents from the floor or working area, shall have emergency shutoff valves controlled from a point not subject to danger of splash. Valves shall conform to the ASME Pressure Vessel Code, section VIII, Unfired Pressure Vessels, 1968.
- (mm) Dye kettles and vats. Pipes or drains of sufficient capacity to carry the contents safely away from the working area shall be installed where there are dye kettles and vats which may at any time contain hot or corrosive liquids. These shall not empty directly onto the floor.
- (nn) Acid carboys. Carboys shall be provided with inclinators, or the acid shall be withdrawn from the carboys by means of pumping without pressure in the carboy, or by means of hand operated siphons.

- (oo) Handling caustic soda and caustic potash. Means shall be provided for handling and emptying caustic soda and caustic potash containers to prevent workers from coming in contact with the caustic (see paragraph (qq) of this section).
- (pp) First aid. Wherever acids or caustics are used, provision shall be made for a copious and flowing supply of fresh, clean water.

[39 FR 23502, June 27, 1974, as amended at 40 FR 23073, May 28, 1975; 49 FR 5324, Feb. 10, 1984, 61 FR 9227, Mar. 7, 1996; 63 FR 33452, June 18, 1998; 81 FR 83006, Nov. 18, 2016.]

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 14-1991, f. 10/10/91, ef. 11/1/91.

OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.

OR-OSHA Admin. Order 4-1999, f. 4/30/99, ef. 4/30/99.

OR-OSHA Admin. Order 2-2017, f. 5/16/17, ef. 11/1/17.

1910.263 Bakery Equipment

(a) General requirements.

(1) Application. The requirements of this section shall apply to the design, installation, operation and maintenance of machinery and equipment used within a bakery.

(2) (Reserved)

(b) (Reserved)

(c) General machine guarding.

(1) (Reserved)

(2) Gears. All gears shall be completely enclosed regardless of location.

(3) Sprockets and V-belt drives. Sprockets and V-belt drives located within reach from platforms or passageways or located within 8 feet 6 inches from the floor shall be completely enclosed.

(4) (Reserved)

(5) Lubrication. Where machinery must be lubricated while in motion, stationary lubrication fittings inside a machine shall be provided with extension piping to a point of safety so that the employee will not have to reach into any dangerous part of the machine when lubricating.

(6) (Reserved)

(7) (Reserved)

(8) Hot pipes. Exposed hot water and steam pipes shall be covered with insulating material wherever necessary to protect employee from contact.

(d) Flour-handling equipment.

(1) General requirements for flour handling.

(i) Wherever any of the various pieces of apparatus comprising a flour-handling system are run in electrical unity with one another the following safeguards shall apply:

(A) (Reserved)

(B) Wherever a flour-handling system is of such size that the beginning of its operation is far remote from its final delivery end, all electric motors operating each apparatus comprising this system shall be controlled at each of two points, one located at each remote end, either of which will stop all motors.

(C) (Reserved)

(D) Control circuits for magnetic controllers shall be so arranged that the opening of any one of several limit switches, which may be on an individual unit, will serve to deenergize all of the motors of that unit.

(2) Bag chutes and bag lifts (bag-arm elevators).

(i) Bag chutes (gravity chutes for handling flour bags) shall be so designed so as to keep to a minimum the speed of flour bags. If the chute inclines more than 30° from the horizontal, there shall be an upturn at the lower end of the chute to slow down the bags.

(ii) Bag-arm elevators with manual takeoff shall be designed to operate at a capacity not exceeding seven bags per minute. The arms on the conveyor chain shall be so spaced as to obtain the full capacity of the elevator with the lowest possible chain speed. There shall be an electric limit switch at the unloading end of the bag-arm elevator so installed as to automatically stop the conveyor chain if any bag fails to clear the conveyor arms.

(iii) (Reserved)

(iv) Man lifts shall be prohibited in bakeries. Bag or barrel lifts shall not be used as man lifts.

(3) Dumpbin and blender.

(i) (Reserved)

(ii) (Reserved)

(iii) (Reserved)

(iv) (Reserved)

(v) All dumpbin and blender hoods shall be of sufficient capacity to prevent circulation of flour dust outside the hoods.

- (vi) All dumpbins shall be of a suitable height from floor to enable the operator to dump flour from bags, without causing undue strain or fatigue. Where the edge of any bin is more than 24 inches above the flour, a bag rest step shall be provided.
 - (vii) A control device for stopping the dumpbin and blender shall be provided close to the normal location of the operator.
- (4) (Reserved)
- (5) (Reserved)
- (6) Storage bins.
- (i) (Reserved)
 - (ii) Storage bins shall be provided with gaskets and locks or latches to keep the cover closed, or other equivalent devices in order to insure the dust tightness of the cover. Covers at openings where an employee may enter the bin shall also be provided with a hasp and a lock, so located that the employee may lock the cover in the open position whenever it is necessary to enter the bin.
 - (iii) Storage bins where the side is more than 5 feet in depth shall be provided with standard stationary safety ladders, both inside and outside, to reach from floor level to top of bin and from top of bin to inside bottom, keeping the ladder end away from the moving screw conveyor.
 - (iv) (Reserved)
 - (v) (Reserved)
 - (vi) The main entrance cover of large storage bins located at the interior exit ladder shall be provided with an electric interlock for motors operating both feed and unloading screw, so that these motors cannot operate while the cover is open.
- (7) Screw conveyors.
- (i) (Reserved)
 - (ii) (Reserved)
 - (iii) The covers of all screw conveyors shall be made removable in convenient sections, held on with stationary clamps located at proper intervals keeping all covers dust-tight. Where drop or hinged bottom sections are provided this provision shall not apply.

(8) Sifters.

- (i) Enclosures of all types of flour sifters shall be so constructed that they are dust-tight but readily accessible for interior inspection.
- (ii) (Reserved)

(9) Flour scales.

- (i) (Reserved)
- (ii) (Reserved)
- (iii) Traveling or track-type flour scales shall be equipped with bar handles for moving same. The bar should be at least 1 inch in diameter and well away from trolley track wheels.

(e) Mixers.

(1) Horizontal dough mixers.

- (i) Mixers with external power application shall have all belts, chains, gears, pulleys, sprockets, clutches, and other moving parts completely enclosed.
- (ii) (Reserved)
- (iii) Each mixer shall be equipped with an individual motor and control, and with a conveniently located manual switch to prevent the mixer from being started in the usual manner while the machine is being serviced and cleaned.
- (iv) All electrical control stations shall be so located that the operator must be in full view of the bowl in its open position. No duplication of such controls other than a stop switch shall be permitted.
- (v) All mixers with power and manual dumping arrangements shall be equipped with safety devices which shall:
 - (A) Engage both hands of the operator, when the agitator is in motion under power, and while the bowl is opened more than one-fifth of its total opening.
 - (B) Prevent the agitator from being started, while the bowl is more than one-fifth open, without engaging both hands of the operator;
- (vi) (Reserved)
- (vii) (Reserved)

- (viii) Every mixer shall be equipped with a full enclosure over the bowl which is closed at all times while the agitator is in motion. Only minor openings in this enclosure, such as ingredient doors, flour inlets, etc., each representing less than 1 1/2 square feet in area, shall be capable of being opened while the mixer is in operation.
- (ix) (Reserved)
- (x) Overhead covers or doors which are subject to accidental closure shall be counterbalanced to remain in an open position or provided with means to hold them open until positively released by the operator.
- (xi) (Reserved)
- (xii) (Reserved)
- (xiii) (Reserved)
- (xiv) (Reserved)
- (xv) (Reserved)
- (xvi) (Reserved)
- (xvii) (Reserved)
- (xviii) Valves and controls to regulate the coolant in mixer jackets shall be located so as to permit access by the operator without jeopardizing his safety.

(2) Vertical mixers.

- (i) Vertical mixers shall comply with paragraphs (e)(1)(i), (iii), (ix) and (x), of this section.
- (ii) (Reserved)
- (iii) Bowl locking devices shall be of a positive type which require the attention of the operator for unlocking.
- (iv) Devices shall be made available for moving bowls weighing more than 80 pounds, with contents, into and out of the mixing position on the machine.

(f) Dividers.

- (1) (Reserved)
- (2) (Reserved)

- (3) Rear of divider. The back of the divider shall have a complete cover to enclose all of the moving parts, or each individual part shall be enclosed or guarded to remove the separate hazards. The rear cover shall be provided with a limit switch in order that the machine cannot operate when this cover is open. The guard on the back shall be hinged so that it cannot be completely removed and if a catch or brace is provided for holding the cover open, it shall be designed so that it will not release due to vibrations or minor bumping whereby the cover may drop on an employee.
- (g) Moulders.
- (1) Hoppers. Mechanical feed moulders shall be provided with hoppers so designed and connected to the proofer that an employee's hands cannot get into the hopper where they will come in contact with the in-running rolls.
- (2) Hand-fed moulders. Hand-fed moulders shall be provided with a belt-feed device or the hopper shall be extended high enough so that the hands of the operator cannot get into the feed rolls. The top edge of such a hopper shall be well rounded to prevent injury when it is struck or bumped by the employee's hand.
- (3) Stopping devices. There shall be a stopping device within easy reach of the operator who feeds the moulder and another stopping device within the reach of the employee taking the dough away from the moulder.
- (h) Manually fed dough brakes.
- (1) Top-roll protection. The top roll shall be protected by a heavy gage metal shield extending over the roll to go within 6 inches of the hopper bottom board. The shield may be perforated to permit observation of the dough entering the rolls.
- (2) Emergency stop bar. An emergency stop bar shall be provided, and so located that the body of the operator will press against the bar if the operator slips and falls toward the rolls, or if the operator gets his hand caught in the rolls. The bar shall apply the body pressure to open positively a circuit that will denenergize the drive motor. In addition, a brake which is inherently self-engaging by requiring power or force from an external source to cause disengagement shall be activated at the same time causing the rolls to stop instantly. The emergency stop bar shall be checked for proper operation every 30 days.
- (i) Miscellaneous equipment.

- (1) Proof boxes. All door locks shall be operable both from within and outside the box. Guide rails shall be installed to center the rack as it enters, passes through, and leaves the proof box.
- (2) Fermentation room. Fermentation room doors shall have nonshatterable wire glass or plastic panels for vision through doors.
- (3) Troughs. Troughs shall be mounted on antifriction bearing casters thus making it possible for the operator to move and direct the motion of the trough with a minimum of effort.
- (4) Hand trucks.
 - (i) Casters shall be set back from corners to be out of the way of toes and heels, but not far enough back to cause the truck to be unstable.
 - (ii) A lock or other device shall be provided to hold the handle in vertical position when the truck is not in use.
- (5) Lift trucks. A lock or other device shall be provided to hold the handle in vertical position when the truck is not in use.
- (6) Racks.
 - (i) (Reserved)
 - (ii) Racks shall be equipped with handles so located with reference to the frame of the rack that no part of the operator's hands extends beyond the outer edge of the frame when holding onto the handles.
 - (iii) Antifriction bearing casters shall be used to give the operator better control of the rack.
- (7) Conveyors.
 - (i) Wherever a conveyor passes over a main aisleway, regularly occupied work area, or passageway, the underside of the conveyor shall be completely enclosed to prevent broken chains or other material from falling in the passageway.
 - (ii) Stop bumpers shall be installed on all delivery ends of conveyors, wherever manual removal of the product carried is practiced.
 - (iii) Where hazard of getting caught exists a sufficient number of stop buttons shall be provided to enable quick stopping of the conveyor.
- (8) (Reserved)

(9) (Reserved)

(10) (Reserved)

(11) Ingredient premixers, emulsifiers, etc.

(i) All top openings shall be provided with covers attached to the machines. These covers should be so arranged and interlocked that power will be shut off whenever the cover is opened to a point where the operator's fingers might come in contact with the beaters.

(ii) (Reserved)

(12) Chain tackle.

(i) All chain tackle shall be marked prominently, permanently, and legibly with maximum load capacity.

(ii) All chain tackle shall be marked permanently and legibly with minimum support specification.

(iii) Safety hooks shall be used.

(13) Trough hoists, etc.

(i) All hoists shall be marked prominently, permanently, and legibly with maximum load capacity.

(ii) All hoists shall be marked permanently and legibly with minimum support specifications.

(iii) Safety catches shall be provided for the chain so that the chain will hold the load in any position.

(iv) Safety hooks shall be used.

(14) Air-conditioning units.

(i) (Reserved)

(ii) On large units with doors to chambers large enough to be entered, all door locks shall be operable from both inside and outside.

(15) Pan washing tanks.

(i) (Reserved)

(ii) The surface of the floor of the working platform shall be maintained in nonslip condition.

- (iii) (Reserved)
- (iv) (Reserved)
- (v) Power ventilated exhaust hoods shall be provided over the tanks.
- (16) (Reserved)
- (17) (Reserved)
- (18) (Reserved)
- (19) (Reserved)
- (20) Bread coolers, rack type.
 - (i) (Reserved)
 - (ii) All door locks shall be operable from both within and outside the cooler.
- (21) (Reserved)
- (22) Doughnut machines. Separate flues shall be provided,
 - (i) for venting vapors from the frying section, and
 - (ii) for venting products of combustion from the combustion chamber used to heat the fat.
- (23) Open fat kettles.
 - (i) The floor around kettles shall be maintained in nonslip condition.
 - (ii) (Reserved)
 - (iii) (Reserved)
 - (iv) The top of the kettle shall be not less than 36 inches above floor or working level.
- (24) Steam kettles.
 - (i) Positive locking devices shall be provided to hold kettles in the desired position.
 - (ii) Kettles with steam jackets shall be provided with safety valves in accordance with the ASME Pressure Vessel Code, Section VIII, Unfired Pressure Vessels, 1968, which is incorporated by reference as specified in 1910.6.

(j) Slicers and wrappers.

(1) Slicers.

(i) (Reserved)

(ii) (Reserved)

(iii) The cover over the knife head of reciprocating-blade slicers shall be provided with an interlocking arrangement so that the machine cannot operate unless the cover is in place.

(iv) On slicers with endless band knives, each motor shall be equipped with a magnet brake which operates whenever the motor is not energized. Each door, panel, or other point of access to the cutting blades shall be arranged by means of mechanical or electric interlocks so that the motor will be deenergized if all such access doors, panels, or access points are not closed.

(v) When it is necessary to sharpen slicer blades on the machine, a barrier shall be provided leaving only sufficient opening for the sharpening stone to reach the knife blades.

(vi) (Reserved)

(vii) Slicer wrapper conditions.

(A) (Reserved)

(B) (Reserved)

(C) Mechanical control levers for starting and stopping both slicing machine conveyors and wrapping machines shall be extended or so located that an operator in one location can control both machines. Such levers should be provided wherever necessary, but these should be so arranged that there is only one station capable of starting the wrapping machine and conveyor assembly, and this starting station should be so arranged or guarded as to prevent accidental starting. The electric control station for starting and stopping the electric motor driving the wrapping machine and conveyor should be located near the clutch starting lever.

(2) Wrappers.

(i) (Reserved)

(ii) (Reserved)

- (iii) Electrical heaters on wrappers shall be protected by a cover plate properly separated or insulated from the heaters in order that accidental contact with this cover plate will not cause a burn to the operator.
- (k) Biscuit and cracker equipment.
 - (1) Meal, peanut, and fig grinders.
 - (i) If the hopper is removable it shall be provided with an electric interlock so that the machine cannot be put in operation when the hopper is removed.
 - (ii) Where grid guards cannot be used, feed conveyors to hoppers, or baffle-type hoppers, shall be provided. Hoppers in such cases shall be enclosed and provided with hinged covers, and equipped with electric interlock to prevent operation of the machine with the cover open.
 - (2) Sugar and spice pulverizers.
 - (i) All drive belts used in connection with sugar and spice pulverizers shall be grounded by means of metal combs or other effective means of removing static electricity. All pulverizing of sugar or spice grinding shall be done in accordance with NFPA 62-1967 (Standard for Dust Hazards of Sugar and Cocoa) and NFPA 656-1959 (Standard for Dust Hazards in Spice Grinding Plants), which are incorporated by reference as specified in 1910.6.
 - (ii) Magnetic separators shall be provided to reduce fire and explosion hazards.
 - (3) Cheese, fruit, and food cutters. These machines shall be protected in accordance with the requirements of paragraph (k)(1) of this section.
 - (4) (Reserved)
 - (5) Reversible dough brakes. Reversible brakes shall be provided with a guard or tripping mechanism on each side of the rolls. These guards shall be so arranged as to stop the machine or reverse the direction of the rolls so that they are outrunning if the guard is moved by contact of the operator.
 - (6) Cross-roll brakes. Cross-roll brakes shall be provided with guards that are similar in number and equal in effectiveness to guards on hand-fed brakes.
 - (7) Box- and roll-type dough sheeters.

- (i) (Reserved)
 - (ii) Hoppers for sheeters shall have an automatic stop bar or automatic stopping device along the back edge of the hopper. If construction does not permit location at the back edge, the automatic stop bar or automatic stopping device shall be located where it will be most effective to accomplish the desired protection.
- (8) (Reserved)
- (9) Rotary, die machines, pretzel rolling, and pretzel-stick extruding machines. Dough hoppers shall have the entire opening protected with substantial grid-type guards to prevent the employee from getting his hands caught in moving parts, or the hopper shall be extended high enough so that the operator's hands cannot get into moving parts.
- (10) (Reserved)
- (11) (Reserved)
- (12) Pan cooling towers.
- (i) Where pan cooling towers extend to two or more floors, a lockout switch shall be provided on each floor in order that mechanics working on the tower may positively lock the mechanism against starting. Only one start switch shall be used in the motor control circuit.
 - (ii) (Reserved)
- (13) Chocolate melting, refining, and mixing kettles. Each kettle shall be provided with a cover to enclose the top of the kettle. The bottom outlet of each kettle shall be of such size and shape that the operator cannot reach in to touch the revolving paddle or come in contact with the shear point between the paddle and the side of the kettle.
- (14) (Reserved)
- (15) (Reserved)
- (16) (Reserved)
- (17) Peanut cooling trucks. Mechanically operated peanut cooling trucks shall have a grid-type cover over the entire top.
- (I) Ovens.
- (1) General location.

- (i) (Reserved)
 - (ii) (Reserved)
 - (iii) (Reserved)
 - (iv) (Reserved)
 - (v) (Reserved)
 - (vi) (Reserved)
 - (vii) Ovens shall be located so that possible fire or explosion will not expose groups of persons to possible injury. For this reason ovens shall not adjoin lockers, lunch or sales rooms, main passageways, or exits.
- (2) (Reserved)
- (3) Safeguards of mechanical parts.
- (i) Emergency stop buttons shall be provided on mechanical ovens near the point where operators are stationed.
 - (ii) All piping at ovens shall be tested to be gastight.
 - (iii) Main shutoff valves, operable separately from any automatic valve, shall be provided to permit turning off the fuel or steam in case of an emergency.
 - (A) Main shutoff valves shall be located so that explosions, fires, etc. will not prevent access to these valves.
 - (B) Main shutoff valves shall be locked in the closed position when men must enter the oven or when the oven is not in service.
- (4) (Reserved)
- (5) (Reserved)
- (6) (Reserved)
- (7) (Reserved)
- (8) Electrical heating equipment.
- (i) (Reserved)
 - (ii) (Reserved)

- (iii) A main disconnect switch or circuit breaker shall be provided. This switch or circuit breaker shall be so located that it can be reached quickly and safely. The main switch or circuit breaker shall have provisions for locking it in the open position if any work on the electrical equipment or inside the oven must be performed.

(9) General requirements.

- (i) Protecting devices shall be properly maintained and kept in working order.
- (ii) All safety devices on ovens shall be inspected at intervals of not less than twice a month by an especially appointed, properly instructed bakery employee, and not less than once a year by representatives of the oven manufacturers.
- (iii)
 - (A) Protection of gas pilot lights shall be provided when it is impracticable to protect the main flame of the burner and where the pilot flame cannot contact the flame electrode without being in the path of the main flame of the burner. Failure of any gas pilot shall automatically shut off the fuel supply to the burner.
 - (B) Ovens with multiple burners shall be equipped with individual atmospheric pilot lights where there is sufficient secondary air in the baking chamber and where gas is available; or else each burner shall be equipped with an electric spark-type ignition device.
- (iv) Burners of a capacity exceeding 150,000 B.t.u. per hour equipped with electric ignition shall be protected in addition by quick-acting combustion safeguards.
 - (A) The high-tension current for any electric spark-type ignition device shall originate in a power supply line which is interlocked with the fuel supply for the oven in such a way that in case of current failure both the source of electricity to the high-tension circuits and the fuel supply shall be turned off simultaneously.
 - (B) (Reserved)
 - (C) Combustion safeguards used in connection with electric ignition systems on ovens shall be so designed as to prevent an explosive mixture from accumulating inside the oven before ignition has taken place.

- (v) When fuel is supplied and used at line pressure, safety shutoff valves shall be provided in the fuel line leading to the burner.
 - (A) When fuel is supplied in excess of line pressure, safety shutoff valves shall be provided in the fuel line leading to the burners, unless the fuel supply lines are equipped with other automatic valves which will prevent the flow of fuel when the compressing equipment is stopped.
 - (B) The safety shutoff valve shall be positively tight and shall be tested at least twice monthly.
 - (C) (Reserved)
 - (D) (Reserved)
 - (E) A safety shutoff valve shall require manual operation for reopening after it has closed, or the electric circuit shall be so arranged that it will require a manual operation for reopening the safety shutoff valve.
 - (F) Manual reset-type safety shutoff valves shall be so arranged that they cannot be locked in an open position by external means.
 - (G) Where blowers are used for supplying the air for combustion the safety shutoff valve shall be interlocked so that it will close in case of air failure.
 - (H) Where gas or electric ignition is used, the safety shutoff valve shall close in case of ignition failure. On burners equipped with combustion safeguards, the valve shall close in case of burner flame failure.
- (vi) One main, manually operated, fuel shutoff valve shall be provided on each oven, and shall be located ahead of all other valves in the system.
- (vii) All individual gas or oil burners with a heating capacity over 150,000 B.t.u. per hour shall be protected by a safeguard which is actuated by the flame and which will react to flame failure in a time interval not to exceed 2 seconds. All safeguards, once having shut down a gas or oil burner, shall require manual resetting and starting of the burner or burners.

- (viii) Any space in an oven (except direct fired ovens) which could be filled with an explosive mixture shall be protected by explosion vents. Explosion vents shall be made of minimum weight consistent with adequate insulation.
- (A) Explosion doors which have a substantial weight shall be attached by chains or similar means to prevent flying parts from injuring the personnel in case of an explosion.
- (B) Where explosion vents are so located that flying parts or gases might endanger the personnel working on or near the oven, internal or external protecting means shall be provided in the form of heavily constructed shields or deflectors made from noncombustible material.
- (C) Specifically exempted from the provisions of paragraph (I)(8)(viii) of this section are heating systems on ovens in which the fuel is admitted only to enclosed spaces which shall have been tested to prove that their construction will resist repeated explosions without deformation are exempt from the requirements of paragraph (I)(8)(viii)(A) and (B) of this section.
- (ix) (Reserved)
- (x) (Reserved)
- (xi) Where the gas supply pressure is substantially higher than that at which the burners of an oven are designed to operate, a gas pressure regulator shall be employed.
- (A) (Reserved)
- (B) (Reserved)
- (C) (Reserved)
- (D) A relief valve shall be placed on the outlet side of gas pressure regulators where gas is supplied at high pressure. The discharge from this valve shall be piped to the outside of the building.
- (10) Direct-fired ovens.
- (i) Direct-fired ovens shall be safeguarded against failure of fuel, air, or ignition.

(ii) To prevent the possible accumulation of explosive gases from being ignited after a shutdown, all direct-fired ovens with a heating capacity over 150,000 B.t.u. per hour shall be ventilated before the ignition system, combustion air blower, and the fuel can be turned on. The prevention shall insure at least four complete changes of atmosphere in the baking chamber by discharging the oven atmosphere to the outside of the building and entraining fresh air into it. The prevention shall be repeated whenever the heating equipment is shut down by a safety device.

(11) Direct recirculating ovens.

(i) Each circulating fan in direct recirculating ovens shall be interconnected with the burner in such a manner that the fuel is shut off by a safety valve when the fan is not running.

(ii) The flame of the burner or burners in direct recirculating ovens shall be protected by a quick-acting flame-sensitive safeguard which will automatically shut off the fuel supply in case of burner failure.

(12) (Reserved)

(13) (Reserved)

(14) (Reserved)

(15) Indirect recirculating ovens.

(i) (Reserved)

(ii) (Reserved)

(iii) Duct systems (in ovens) operating under pressure shall be tested for tightness in the initial starting of the oven and also at intervals not farther apart than 6 months.

[39 FR 23502, June 27, 1974, as amended at 43 FR 49765, Oct. 24, 1978; 43 FR 51760, Nov. 7, 1978; 61 FR 9241, Mar. 7, 1996.]

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 14-1991, f. 10/10/91, ef. 11/1/91.

OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.

1910.264 Laundry Machinery and Operations

- (a) (Reserved)
- (b) General requirements. This section applies to moving parts of equipment used in laundries and to conditions peculiar to this industry, with special reference to the point of operation of laundry machines. This section does not apply to dry-cleaning operations.
- (c) Point-of-operation guards.
 - (1) Washroom machines.
 - (i) (Reserved)
 - (ii) Washing machine.
 - (A) (Reserved)
 - (B) Each washing machine shall be provided with means for holding open the doors or covers of inner and outer cylinders or shells while being loaded or unloaded.
 - (2) Starching and drying machines.
 - (i) (Reserved)
 - (ii) (Reserved)
 - (iii) Drying tumbler.
 - (A) (Reserved)
 - (B) Each drying tumbler shall be provided with means for holding open the doors or covers of inner and outer cylinders or shells while being loaded or unloaded.
 - (iv) Shaker (clothes tumbler).
 - (A) (Reserved)
 - (B)
 - (1) (Reserved)
 - (2) Each shaker or clothes tumbler of the double-cylinder type shall be provided with means for holding open the doors or covers of inner and outer cylinders or shells while being loaded or unloaded.

- (v) Exception. Provisions of paragraph (c)(2)(iii), (iv)(A)(1), and (iv)(B) of this section shall not apply to shakeout or conditioning tumblers where the clothes are loaded into the open end of the revolving cylinder and are automatically discharged out of the opposite end.
- (3) (Reserved)
- (4) Miscellaneous machines and equipment.
 - (i) (Reserved)
 - (ii) (Reserved)
 - (iii) Steam pipes.
 - (A) All steam pipes that are within 7 feet of the floor or working platform, and with which the worker may come into contact, shall be insulated or covered with a heat-resistive material or shall be otherwise properly guarded.
 - (B) Where pressure-reducing valves are used, one or more relief or safety valves shall be provided on the low-pressure side of the reducing valve, in case the piping or equipment on the low-pressure side does not meet the requirements for full initial pressure. The relief or safety valve shall be located adjacent to, or as close as possible to, the reducing valve. Proper protection shall be provided to prevent injury or damage caused by fluid escaping from relief or safety valves if vented to the atmosphere. The vents shall be of ample size and as short and direct as possible. The combined discharge capacity of the relief valves shall be such that the pressure rating of the lower-pressure piping and equipment will not be exceeded if the reducing valve sticks or fails to open.
- (d) Operating rules.
 - (1) General.
 - (i) (Reserved)
 - (ii) (Reserved)
 - (iii) Markers. Markers and others handling soiled clothes shall be warned against touching the eyes, mouth, or any part of the body on which the skin has been broken by a scratch or abrasion; and they shall be cautioned not to touch or eat food until their hands have been thoroughly washed.

(iv) (Reserved)

(v) Instruction of employees. Employees shall be properly instructed as to the hazards of their work and be instructed in safe practices, by bulletins, printed rules, and verbal instructions.

(2) Mechanical.

(i) Safety guards.

(A) No safeguard, safety appliance, or device attached to, or forming an integral part of any machinery shall be removed or made ineffective except for the purpose of making immediate repairs or adjustments. Any such safeguard, safety appliance, or device removed or made ineffective during the repair or adjustment of such machinery shall be replaced immediately upon the completion of such repairs or adjustments.

(B) (Reserved)

[39 FR 23502, June 27, 1974, as amended at 43 FR 49767, Oct. 24, 1978; 43 FR 51760, Nov. 7, 1978]

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 14-1991, f. 10/10/91, ef. 11/1/91.

1910.265 Sawmills

(a) General requirements.

Note: Federal rule 1910.265(a), which exempted plywood, cooperage and veneer manufacturing, was NOT adopted by OR-OSHA. In Oregon, OAR 437-002-0313(1) allows the application of sections (c) and (d) of 1910.265 to those industries.

437-002-0313 Oregon Rules For Sawmills

(1) Application. This section includes safety requirements for sawmill operations including, but not limited to, log and lumber handling, sawing, trimming, and planing; waste disposal; operation of dry kilns; finishing; shipping; storage; yard and yard equipment; and for power tools and affiliated equipment used in connection with such operations.

1910.265 (b) Definitions applicable to this section.

- (1) **A-frame.** The term A-frame means a structure made of two independent columns fastened together at the top and separated at the bottom for stability.
- (2) **Annealing.** The term annealing means heating then cooling to soften and render less brittle.
- (3) **Binder.** The term binder means a chain, cable, rope, or other approved material used for binding loads.
- (4) **Boom.** The term boom means logs or timbers fastened together end to end and used to contain floating logs. The term includes enclosed logs.
- (5) **Brow log.** The term brow log means a log placed parallel to a roadway at a landing or dump to protect vehicles while loading or unloading.
- (6) **Bunk.** The term bunk means a cross support for a load.
- (7) **Cant.** The term cant means a log slabbed on one or more sides.
- (8) **Carriage (log carriage).** The term carriage means a framework mounted on wheels which runs on tracks or in grooves in a direction parallel to the face of the saw, and which contains apparatus to hold a log securely and advance it towards the saw.
- (9) **Carrier.** The term carrier means an industrial truck so designed and constructed that it straddles the load to be transported with mechanisms to pick up the load and support it during transportation.

- (10) **Chipper.** The term chipper means a machine which cuts material into chips.
- (11) **Chock (bunk block) (cheese block).** The terms chock, bunk block, and cheese block mean a wedge that prevents logs or loads from moving.
- (12) **Cold deck.** The term cold deck means a pile of logs stored for future removal.
- (13) **Crotch lines.** The term crotch lines means two short lines attached to a hoisting line by a ring or shackle, the lower ends being attached to loading hooks.
- (14) **Dog (carriage dog).** The term dog means a steel tooth, one or more of which are attached to each carriage knee to hold log firmly in place on carriage.
- (15) **Drag saw.** The term drag saw means a power-driven, reciprocating crosscut saw mounted on suitable frame and used for bucking logs.
- (16) **Head block.** The term head block means that part of a carriage which holds the log and upon which it rests. It generally consists of base, knee, taper set, and mechanism.
- (17) **Head rig.** The term head rig means a combination of head saw and log carriage used for the initial breakdown of logs into timbers, cants, and boards.
- (18) **Hog.** The term hog means a machine for cutting or grinding slabs and other coarse residue from the mill.
- (19) **Husk.** The term husk means a head saw framework on a circular mill.
- (20) **Industrial truck.** The term industrial truck means a mobile powerdriven truck or tractor.
- (21) **Kiln tender.** The term kiln tender means the operator of a kiln.
- (22) **Lift truck.** The term lift truck means an industrial truck used for lateral transportation and equipped with a power-operated lifting device, usually in the form of forks, for piling or unpling lumber units or packages.
- (23) **Live rolls.** The term live rolls means cylinders of wood or metal mounted on horizontal axes and rotated by power, which are used to convey slabs, lumber, and other wood products.
- (24) **Loading boom.** The term loading boom means any structure projecting from a pivot point to guide a log when lifted.

- (25) **Log deck.** The term Log deck means a platform in the sawmill on which the logs remain until needed for sawing.
- (26) **Lumber hauling truck.** The term lumber hauling truck means an industrial truck, other than a lift truck or a carrier, used for the transport of lumber.
- (27) **Log haul.** The term log haul means a conveyor for transferring logs to mill.
- (28) **Package.** The term package means a unit of lumber.
- (29) **Peavy.** The term peavy means a stout wooden handle fitted with a spike and hook and used for rolling logs.
- (30) **Pike pole.** The term pike pole means a long pole whose end is shod with a sharp pointed spike.
- (31) **Pitman rod.** The term pitman rod means connecting rod.
- (32) **Resaw.** The term resaw means band, circular, or sash gang saws used to break down slabs, cants, or flitches into lumber.
- (33) **Running line.** The term running line means any moving rope as distinguished from a stationary rope such as a guyline.
- (34) **Safety factor.** The term safety factor means a calculated reduction factor which may be applied to laboratory test values to obtain safe working stresses for wooden beams and other mechanical members; ratio of breaking load to safe load.
- (35) **Saw guide.** The term saw guide means a device for steadying a circular or bandsaw.
- (36) **Setwork.** The term setwork means a mechanism on a sawmill carriage which enables an operator to move the log into position for another cut.
- (37) **Sorting gaps.** The term sorting gaps means the areas on a log pond enclosed by boom sticks into which logs are sorted.
- (38) **Spreader wheel.** The term spreader wheel means a metal wheel that separates the board from the log in back of circular saws to prevent binding.
- (39) **Splitter.** The term splitter means a knife-type, nonrotating spreader.
- (40) **Sticker.** The term sticker means a strip of wood or other material used to separate layers of lumber.

- (41) **Stiff boom.** The term stiff boom means the anchored, stationary boom sticks which are tied together and on which boom men work.
- (42) **Swifter.** The term swifter is a means of tying boom sticks together to prevent them from spreading while being towed.
- (43) **Telltale.** The term telltale means a device used to serve as a warning for overhead objects.
- (44) **Top saw.** The term top saw means the upper of two circular saws on a head rig, both being on the same husk.
- (45) **Tramway.** The term tramway means a way for trams, usually consisting of parallel tracks laid on wooden beams.
- (46) **Trestle.** The term trestle means a braced framework of timbers, piles or steelwork for carrying a road or railroad over a depression.
- (c) Building facilities, and isolated equipment.
- (1) Safety factor. All buildings, docks, tramways, walkways, log dumps, and other structures shall be designed, constructed and maintained so as to support the imposed load in accordance with a safety factor.
- (2) Work areas. Work areas under mills shall be as evenly surfaced as local conditions permit. They shall be free from unnecessary obstructions and provided with lighting facilities in accordance with American National Standard for Industrial Lighting A11.1-1965, which is incorporated by reference as specified in 1910.6.
- (3) Floors. Flooring in buildings and on ramps and walkways shall be constructed and installed in accordance with established principles of mechanics and sound engineering practices. They shall be of adequate strength to support the estimated or actual dead and live loads acting on them with the resultant stress not exceeding the allowable stress for the material being used.
- (i) Reserved.
- (ii) Areas beneath floor openings. Areas under floor openings shall, where practical, be fenced off. When this is not practical, they shall be plainly marked and telltales shall be installed to hang over these areas.
- (iii) Floor maintenance. The flooring of buildings, docks, and passageways shall be kept in good repair. When a hazardous condition develops that cannot be immediately repaired, the area shall be guarded until adequate repairs are made.

- (iv) Nonslip floors. Floors, footwalks, and passageways in the work area around machines or other places where a person is required to stand or walk shall be provided with effective means to minimize slipping.

(4) Walkways, docks, and platforms.

- (i) Width. Walkways, docks, and platforms shall be of sufficient width to provide adequate passage and working areas.
- (ii) Maintenance. Walkways shall be evenly floored and kept in good repair.
- (iii) Docks. Docks and runways used for the operation of lift trucks and other vehicles shall have a substantial guard or shear timber except where loading and unloading are being performed.
- (iv) Elevated walks. All elevated walks, runways, or platforms, if 4 feet or more from the floor level, shall be provided with a standard railing except on loading or unloading sides of platforms. If height exceeds 6 feet, a standard toeboard also shall be provided to prevent material from rolling or falling off.
- (v) Elevated platforms. Where elevated platforms are used routinely on a daily basis they shall be equipped with stairways or fixed ladders that comply with Subpart D of this part.
- (vi) Hazardous locations. Where required, walkways and stairways with standard handrails shall be provided in elevated and hazardous locations. Where such passageways are over walkways or work areas, standard toeboards shall be provided.

(5) Stairways.

- (i) Construction. Stairways shall be constructed in accordance with Subpart D of this part.
- (ii) Handrails. Stairways shall be provided with a standard handrail on at least one side or on any open side. Where stairs are more than 4 feet wide there shall be a standard handrail at each side, and where more than 8 feet wide, a third standard handrail shall be erected in the center of the stairway.
- (iii) Lighting. All stairways shall be adequately lighted as prescribed in paragraph (c)(9) of this section.

(6) Emergency exits including doors and fire escapes.

- (i) Opening. Doors shall not open directly on or block a flight of stairs, and shall swing in the direction of exit travel.
 - (ii) Identification. Exits shall be located and identified in a manner that affords ready exit from all work areas.
 - (iii) Swinging doors. All swinging doors shall be provided with windows; with one window for each section of double swinging doors. Such windows shall be of shatter proof or safety glass unless otherwise protected against breakage.
 - (iv) Sliding doors. Where sliding doors are used as exits, an inner door shall be cut inside each of the main doors and arranged to open outward.
 - (v) Barriers and warning signs. Where a doorway opens upon a railroad track or upon a tramway or dock over which vehicles travel, a barrier or other warning device shall be placed to prevent workmen from stepping into moving traffic.
- (7) Air requirements. Ventilation shall be provided to supply adequate fresh healthful air to rooms, buildings, and work areas.
- (8) Vats and tanks. All open vats and tanks into which workmen could fall shall be guarded.
- (9) Lighting.
- (i) Adequacy. Illumination shall be provided and designed to supply adequate general and local lighting to rooms, buildings, and work areas during the time of use.
 - (ii) Effectiveness. Factors upon which the adequacy and effectiveness of illumination will be judged, include the following:
 - (A) The quantity of light in foot-candle intensity shall be sufficient for the work being done.
 - (B) The quality of the light shall be such that it is free from glare, and has correct direction, diffusion, and distribution.
 - (C) Shadows and extreme contrasts shall be avoided or kept to a minimum.
- (10) Reserved.
- (11) Hazard marking. Physical hazard marking shall be as specified in 1910.144 of this part.

- (12) Reserved.
- (13) Hydraulic systems. Means shall be provided to block, chain, or otherwise secure equipment normally supported by hydraulic pressure so as to provide for safe maintenance.
- (14) Reserved.
- (15) Gas piping and appliances. All gas piping and appliances shall be installed in accordance with the American National Standard Requirements for the Installation of Gas Appliances and Gas Piping Z21.30-1964, which is incorporated by reference as specified in 1910.6.
- (16) Reserved.
- (17) Reserved.
- (18) Conveyors.
- (i) Standards. Construction, operation, and maintenance of conveyors shall be in accordance with American National Standard B20.1-1957, which is incorporated by reference as specified in 1910.6.
- (ii) Guarding. Spiked live rolls shall be guarded.

437-002-0313 (2) Conveyors

Feed conveyors for chippers, hogs, burners, and other dangerous machines shall be fully guarded to prevent workers from falling into the conveyor. Where a part of the guard must be omitted to permit workers to feed the conveyor, they shall be provided with and shall wear a safety belt and lanyard tied off to a life line.

1910.265 (c)(19) Stationary tramways and trestles.

- (i) Foundations and walkways. Tramways and trestles shall have substantial mud sills or foundations which shall be frequently inspected and kept in repair. When vehicles are operated on tramways and trestles which are used for foot passage, traffic shall be controlled or a walkway with standard handrails at the outer edge and shear timber on the inner edge shall be provided. This walkway shall be wide enough to allow adequate clearance to vehicles. When walkways cross over other thoroughfares, they shall be solidly fenced at the outer edge to a height of 42 inches over such thoroughfares.

- (ii) Clearance. Stationary tramways and trestles shall have a vertical clearance of 22 feet over railroad rails. When constructed over carrier docks or roads, they shall have a clearance of 6 feet above the driver's foot rest on the carrier, and in no event shall this clearance be less than 12 feet from the roadway. In existing operations where it is impractical to obtain such clearance, telltales, electric signals, signs or other precautionary measures shall be installed.

(20) Blower, collecting, and exhaust systems.

- (i) Design, construction, and maintenance. Blower collecting, and exhaust systems should be designed, constructed, and maintained in accordance with American National Standards Z33.1-1961 (For the Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying) and Z12.2-1962 (R1969) (Code for the Prevention of Dust Explosion in Woodworking and Wood Flour Manufacturing Plants), which is incorporated by reference as specified in 1910.6.
- (ii) Collecting systems. All mills containing one or more machines that create dust, shavings, chips, or slivers during a period of time equal to or greater than one-fourth of the working day, shall be equipped with a collecting system. It may be either continuous or automatic, and shall be of sufficient strength and capacity to enable it to remove such refuse from points of operation and immediate vicinities of machines and work areas.
- (iii) Exhaust or conveyor systems. Each woodworking machine that creates dust, shavings, chips, or slivers shall be equipped with an exhaust or conveyor system located and adjusted to remove the maximum amount of refuse from the point of operation and immediate vicinity.
- (iv) (Reserved)
- (v) Dust chambers. Exhaust pipes shall not discharge into an unconfined outside pile if uncontrolled fire or explosion hazards are created. They may empty into settling or dust chambers, designed to prevent the dust or refuse from entering any work area. Such chambers shall be constructed and operated to minimize the danger of fire or dust explosion.

- (vi) Hand removal of refuse. Provision for the daily removal of refuse shall be made in all operations not required to have an exhaust system or having refuse too heavy, bulky, or otherwise unsuitable to be handled by the exhaust system.

(21) Chippers.

- (i) Whole-log chippers. The feed system to the chipper shall be arranged so the operator does not stand in direct line with the chipper spout (hopper). The chipper spout shall be enclosed to a height of not less than 36 inches from the floor or the operator's platform. A safety belt and lifeline shall be worn by workmen when working at or near the spout unless the spout is guarded. The lifeline shall be short enough to prevent workers from falling into the chipper.

(ii) Hogs.

- (A) Hog mills shall be so designed and arranged that from no position on the rim of the chute shall the distance to the cutter knives be less than 40 inches.
- (B) Hog feed chutes shall be provided with suitable and approved baffles, which shall minimize material from being thrown from the mill.
- (C) Employees feeding hog mills shall be provided with safety belts and lines unless guarded.

(22) Reserved.

(23) Bins, bunkers, hoppers, and fuel houses.

- (i) Guarding. Open bins, bunkers, and hoppers whose upper edges extend less than 3 feet above working level shall be equipped with standard handrails and toeboards, or have their tops covered by a substantial grill or grating with openings small enough to prevent a man from falling through.
- (ii) Use of wheeled equipment to load bins. Where automotive or other wheeled equipment is used to move materials into bins, bunkers, and hoppers, adequate guardrails shall be installed along each side of the runway, and a substantial bumper stop provided when necessary.
- (iii) Exits, lighting, and safety devices. Fuel houses and bins shall have adequate exits and lighting, and all necessary safety devices shall be provided and shall be used by persons entering these structures.

(iv) Walkways. Where needed, fuel houses and bins shall have a standard railed platform or walkway near the top.

(24) Ropes, cables, slings, and chains.

(i) Safe usage. Ropes, cables, slings, and chains shall be used in accordance with safe use practices recommended by the manufacturer or within safe limits recommended by the equipment manufacturer when used in conjunction with it.

(ii) Hooks. No open hook shall be used in rigging to lift any load where there is hazard from relieving the tension on the hook from the load or hook catching or fouling.

(iii) Work by qualified persons. Installation, inspection, maintenance, repair, and testing of ropes, cables, slings, and chains shall be done only by persons qualified to do such work.

(iv) Slings. Proper storage shall be provided for slings while not in use.

(v) Ropes or cables.

(A) Wire rope or cable shall be inspected when installed and once each week thereafter, when in use. It shall be removed from hoisting or load-carrying service when kinked or when one of the following conditions exists:

(1) When three broken wires are found in one lay of 6 by 6 wire rope.

(2) When six broken wires are found in one lay of 6 by 19 wire rope.

(3) When nine broken wires are found in one lay of 6 by 37 wire rope.

(4) When eight broken wires are found in one lay of 8 by 19 wire rope.

(5) When marked corrosion appears.

(6) Wire rope of a type not described herein shall be removed from service when 4 percent of the total number of wires composing such rope are found to be broken in one lay.

(B) Wire rope removed from service due to defects shall be plainly marked or identified as being unfit for further use on cranes, hoists, and other load-carrying devices.

- (C) The ratio between the rope diameter and the drum, block, sheave, or pulley tread diameter shall be such that the rope will adjust itself to the bend without excessive wear, deformation, or injury. In no case shall the safe value of drums, blocks, sheaves, or pulleys be reduced when replacing such items unless compensating changes are made for rope used and for safe loading limits.
- (vi) Drums, sheaves, and pulleys. Drums, sheaves, and pulleys shall be smooth and free from surface defects liable to injure rope. Drums, sheaves, or pulleys having eccentric bores or cracked hubs, spokes, or flanges shall be removed from service.
- (vii) Connections. Connections, fittings, fastenings, and other parts used in connection with ropes and cables shall be of good quality and of proper size and strength, and shall be installed in accordance with the manufacturer's recommendations.
- (viii) Socketing, splicing, and seizing.
- (A) Socketing, splicing, and seizing of cables shall be performed only by qualified persons.
- (B) All eye splices shall be made in an approved manner and wire rope thimbles of proper size shall be fitted in the eye, except that in slings the use of thimbles shall be optional.
- (C) Wire rope clips attached with U-bolts shall have these bolts on the dead or short end of the rope. The U-bolt nuts shall be retightened immediately after initial load carrying use and at frequent intervals thereafter.
- (D) When a wedge socket-type fastening is used, the dead or short end of the cable shall be clipped with a U-bolt or otherwise made secure against loosening.
- (E) Fittings. Hooks, shackles, rings, pad eyes, and other fittings that show excessive wear or that have been bent, twisted, or otherwise damaged shall be removed from service.
- (F) Running lines. Running lines of hoisting equipment located within 6 feet 6 inches of the ground or working level shall be boxed off or otherwise guarded, or the operating area shall be restricted.
- (G) Number of wraps on drum. There shall be not less than two full wraps of hoisting cable on the drum of cranes and hoists at all times of operation.

- (H) Drum flanges. Drums shall have a flange at each end to prevent the cable from slipping off.
 - (I) Sheave guards. Bottom sheaves shall be protected by close fitting guards to prevent cable from jumping the sheave.
 - (J) Preventing abrasion. The reeving of a rope shall be so arranged as to minimize chafing or abrading while in use.
- (ix) Chains.
- (A) Chains used in load carrying service shall be inspected before initial use and weekly thereafter.
 - (B) Chain shall be normalized or annealed periodically as recommended by the manufacturer.
 - (C) If at any time any 3-foot length of chain is found to have stretched one-third the length of a link it shall be discarded.
 - (D) Bolts or nails shall not be placed between two links to shorten or join chains.
 - (E) Broken chains shall not be spliced by inserting a bolt between two links with the head of the bolt and nut sustaining the load, or by passing one link through another and inserting a bolt or nail to hold it.
- (x) Fiber rope.
- (A) Frozen fiber rope shall not be used in load carrying service.
 - (B) Fiber rope that has been subjected to acid or excessive heat shall not be used for load carrying purposes.
 - (C) Fiber rope shall be protected from abrasion by padding where it is fastened or drawn over square corners or sharp or rough surfaces.
- (25) (Reserved)
- (26) Mechanical stackers and unstackers.
- (i) Reserved.
 - (ii) Lumber lifting devices. Lumber lifting devices on all stackers shall be designed and arranged so as to minimize the possibility of lumber falling from such devices.

- (iii) Blocking hoisting platform. Means shall be provided to positively block the hoisting platform when employees must go beneath the stacker or unstacker hoist.
 - (iv) Identifying controls. Every manually operated control switch shall be properly identified and so located as to be readily accessible to the operator.
 - (v) Locking main control switches. Main control switches shall be so designed that they can be locked in the open position.
 - (vi) Guarding side openings. The hoistway side openings at the top level of the stacker and unstacker shall be protected by enclosures of standard railings.
 - (vii) Guarding hoistway openings. When the hoist platform or top of the load is below the working platform, the hoistway openings shall be guarded.
 - (viii) Guarding lower landing area. The lower landing area of stackers and unstackers shall be guarded by enclosures that prevent entrance to the area or pit below the hoist platform. Entrances should be protected by electrically interlocked gates which, when open, will disconnect the power and set the hoist brakes. When the interlock is not installed, other positive means of protecting the entrance shall be provided.
 - (ix) Inspection. Every stacker and unstacker shall be inspected at frequent intervals and all defective parts shall be immediately repaired or replaced.
 - (x) Cleaning pits. Safe means of entrance and exit shall be provided to permit cleaning of pits.
 - (xi) Preventing entry to hazardous area. Where the return of trucks from unstacker to stacker is by mechanical power or gravity, adequate signs, warning devices, or barriers shall be erected to prevent entry into the hazardous area.
- (27) Lumber piling and storage.
- (i) Pile foundations. In stacking units of lumber, pile foundations shall be designed and arranged to support maximum loads without sinking, sagging, or permitting the piles to topple. In unit package piles, substantial bolsters or unit separators shall be placed between each package directly over the stickers.

- (ii) Stacking dissimilar unit packages. Long units of lumber shall not be stacked upon shorter packages except where a stable pile can be made with the use of package separators.
 - (iii) Unstable piles. Piles of lumber which have become unstable shall be immediately made safe, or the area into which they might fall shall be fenced or barricaded and employees prohibited from entering it.
 - (iv) Stickers. Unit packages of lumber shall be provided with stickers as necessary to insure stability under ordinary operating conditions.
 - (v) Sticker alignment. Stickers shall extend the full width of the package, shall be uniformly spaced, and shall be aligned one above the other. Stickers may be lapped with a minimum overlapping of 12 inches. Stickers shall not protrude more than 2 inches beyond the sides of the package.
 - (vi) Pile height. The height of unit package piles shall be dependent on the dimensions of the packages and shall be such as to provide stability under normal operating conditions. Adjacent lumber piles may be tied together with separators to increase stability.
- (28) Lumber loading. Loads shall be built and secured to insure stability in transit.
- (29) Burners.
- (i) Guying. If the burner stack is not self-supporting, it shall be guyed or otherwise supported.
 - (ii) Runway. The conveyor runway to the burner shall be equipped with a standard handrail. If the runway crosses a roadway or thoroughfare, standard toeboards shall be provided in addition.
- (30) Vehicles.
- (i) Scope. Vehicles shall include all mobile equipment normally used in sawmill, planing mill, storage, shipping, and yard operations.
 - (ii) Warning signals and spark arrestors. All vehicles shall be equipped with audible warning signals and where practicable shall have spark arrestors.
 - (iii) Lights. All vehicles operated in the dark or in poorly lighted areas shall be equipped with head and tail lights.

- (iv) Overhead guard. All vehicles operated in areas where overhead hazards exist shall be equipped with an approved overhead guard. See American National Standard Safety Code for Powered Industrial Trucks, B56.1-1969, which is incorporated by reference as specified in 1910.6.
 - (v) Platform guard. Where the operator is exposed to hazard from backing the vehicle into objects, an approved platform guard shall be provided and so arranged as to not impede exit of driver from vehicle.
 - (vi) Reserved.
 - (vii) Operation in buildings. Vehicles powered by internal combustion engines shall not operate in buildings unless the buildings are adequately ventilated.
 - (viii) Load limits. No vehicle shall be operated with loads exceeding its safe load capacity.
 - (ix) Brakes. All vehicles shall be equipped with brakes capable of holding and controlling the vehicle and capacity load upon any incline or grade over which they may be operated.
 - (x) Reserved.
 - (xi) Carriers.
 - (A) Carriers shall be so designed and constructed that the operator's field of vision shall not be unnecessarily restricted.
 - (B) Carriers shall be provided with an access ladder or equivalent.
 - (xii) Lumber hauling trucks.
 - (A) On trucks where movement of load on stopping would endanger the operator, a substantial bulkhead shall be installed behind the operator's seat. This shall extend to the top of the operator's compartment.
 - (B) Stakes, stake pockets, racks, tighteners, and binders shall provide adequate means to secure the load against any movement during transit.
 - (C) Where rollers are used, at least two shall be equipped with locks which shall be locked when supporting loads during transit.
- (31) Traffic control and flow.

- (i) Hazardous crossings. Railroad tracks and other hazardous crossings shall be plainly posted.
 - (ii) Restricted overhead clearance. All areas of restricted side or overhead clearance shall be plainly marked.
 - (iii) Pickup and unloading points. Pickup and unloading points and paths for lumber packages on conveyors and transfers and other areas where accurate spotting is required, shall be plainly marked and wheel stops provided where necessary.
 - (iv) Aisles, passageways, and roadways. Aisles, passageways, and roadways shall be sufficiently wide to provide safe side clearance. One-way aisles may be used for two-way traffic if suitable turnouts are provided.
- (d) Log handling, sorting, and storage.
- (1) Log unloading methods, equipment, and facilities.
 - (i) Unloading methods.
 - (A) Stakes and chocks which trip shall be constructed in such manner that the tripping mechanism that releases the stake or chocks is activated at the opposite side of the load being tripped.
 - (B) Binders on logs shall not be released prior to securing with unloading lines or other unloading device.
 - (C) Binders shall be released only from the side on which the unloader operates, except when released by remote control devices or except when person making release is protected by racks or stanchions or other equivalent means.

Note: Other equivalent means include the procedures contained in OAR 437, Division 7, Forest Activities (Subdivision K, OAR 437-007-1015).
 - (D) Loads on which a binder is fouled by the unloading machine shall have an extra binder or metal band of equal strength placed around the load, or the load shall be otherwise secured so the fouled binder can be safely removed.
 - (ii) Unloading equipment and facilities.
 - (A) Machines used for hoisting, unloading, or lowering logs shall be equipped with brakes capable of controlling or holding the maximum load in midair.

- (B) The lifting cylinders of all hydraulically operated log handling machines shall be equipped with a positive device for preventing the uncontrolled lowering of the load or forks in case of a failure in the hydraulic system.

437-002-0313 (3) Unloading Equipment

- (a) The tilt and overarm grapple of all hydraulically operated log handling machines shall be equipped with a means for preventing the release of the tilt and/or grapple devices in case of a failure in the hydraulic system.*

1910.265 (d)(1)(ii)(C) A limit switch shall be installed on powered log handling machines to prevent the lift arms from traveling too far in the event the control switch is not released in time.

- (D) When forklift-type machines are used to load trailers, a means of securing the loading attachment to the fork shall be installed and used.

- (E) A-frames and similar log unloading devices shall have adequate height to provide safe clearance for swinging loads and to provide for adequate crotch lines and spreader bar devices.

437-002-0313 (3) Unloading Equipment

- (b) A-frames and similar log unloading devices shall be guyed and braced to provide stability and prevent tipping.*

1910.265 (d)(1)(ii)(F) Log handling machines used to stack logs or lift loads above operator's head shall be equipped with adequate overhead protection.

- (G) All mobile log handling machines shall be equipped with headlights and backup lights.

- (H) Unloading devices shall be equipped with a horn or other plainly audible signaling device.

- (I) Movement of unloading equipment shall be coordinated by audible or hand signals when operator's vision is impaired or operating in the vicinity of other employees.

- (J) Wood pike poles shall be made of straight-grained, select material. Metal or conductive pike poles shall not be used around exposed energized electrical conductors. Defective, blunt, or dull pike poles shall not be used.

(2) Log unloading and storage areas.

(i) General.

- (A) Log dumps, booms, ponds, or storage areas used at night shall be illuminated in accordance with the requirements of American National Standard A11.1-1965 (R-1970) Standard Practice for Industrial Lighting, which is incorporated by reference as specified in 1910.6.
- (B) Log unloading areas shall be arranged and maintained to provide a safe working area.
- (C) Where skids are used, space adequate to clear a man's body shall be maintained between the top of the skids and the ground.
- (D) Signs prohibiting unauthorized foot or vehicle traffic in log unloading and storage areas shall be posted.

(ii) Water log dumps.

- (A) Ungrounded electrically powered hoists using handheld remote control in grounded locations, such as log dumps or mill log lifts, shall be actuated by circuits operating at less than 50 volts to ground.
- (B) Roadbeds at log dumps shall be of sufficient width and evenness to insure safe operation of equipment.
- (C) An adequate brow log or skid timbers or the equivalent shall be provided where necessary. Railroad-type dumps, when located where logs are dumped directly into water or where entire loads are lifted from vehicle, may be exempted providing such practice does not create a hazardous exposure of personnel or equipment.
- (D) Unloading lines shall be arranged so that it is not necessary for the employees to attach them from the pond or dump side of the load except when entire loads are lifted from the log-transporting vehicle.
- (E) Unloading lines, crotch lines, or equally effective means shall be arranged and used in a manner to minimize the possibility of any log from swinging or rolling back.
- (F) When logs are unloaded with peavys or similar manual methods, means shall be provided and used that will minimize the danger from rolling or swinging logs.

- (G) Guardrails, walkways, and standard handrails shall be installed.
 - (H) Approved life rings (see: 46 CFR 160.099 and 46 CFR 160.050) with line attached and maintained to retain buoyancy shall be provided.
- (iii) Log booms and ponds.
- (A) Walkways and floats shall be installed and securely anchored to provide adequate passageway for employees.
 - (B) All regular boom sticks and foot logs shall be reasonably straight, with no protruding knots and bark, and shall be capable of supporting, above the water line at either end, the weight of an employee and equipment.
 - (C) Permanent cable swifters shall be so arranged that it will not be necessary to roll boom sticks in order to attach or detach them.
 - (D) Periodic inspection of cable or dogging lines shall be made to determine when repair or removal from service is necessary.
 - (E) The banks of the log pond in the vicinity of the log haul shall be reinforced to prevent caving in.
 - (F) Artificial log ponds shall be drained, cleaned, and refilled when unhealthy stagnation or pollution occurs.
 - (G) Employees whose duties require them to work from boats, floating logs, boom sticks, or walkways along or on water shall be provided with and shall wear appropriate buoyant devices while performing such duties.
 - (H) Stiff booms shall be two float logs wide secured by boom chains or other connecting devices, and of a width adequate for the working needs. Walking surfaces shall be free of loose material and maintained in good repair.
 - (I) Boom sticks shall be fastened together with adequate crossties or couplings.
 - (J) Floating donkeys or other power-driven machinery used on booms shall be placed on a raft or float with enough buoyancy to keep the deck well above water.
 - (K) All sorting gaps shall have a substantial stiff boom on each side.

- (iv) Pond boats and rafts. The applicable provisions of the Standard for Fire Protection for Motorcraft, NFPA No. 302-1968, which is incorporated by reference as specified in 1910.6, shall be complied with.
- (A) Decks of pond boats shall be covered with nonslip material.
 - (B) Powered pond boats or rafts shall be provided with at least one approved fire extinguisher, and one life-ring with line attached.
Note: Small pond boats which are not designed to transport more than one person are exempt from the life-ring requirement.
 - (C) Boat fuel shall be transported and stored in approved safety containers. Refer to 1910.155(c)(3) for definition of approved.
 - (D) Inspection, maintenance, and ventilation of the bilge area shall be provided to prevent accumulation of highly combustible materials.
 - (E) Adequate ventilation shall be provided for the cabin area on enclosed cabin-type boats to prevent accumulation of harmful gases or vapors.
- (v) Dry deck storage.
- (A) Dry deck storage areas shall be kept orderly and shall be maintained in a condition which is conducive to safe operation of mobile equipment.
 - (B) Logs shall be stored in a safe and orderly manner, and roadways and traffic lanes shall be maintained at a width adequate for safe travel of log handling equipment.
 - (C) Logs shall be arranged to minimize the chance of accidentally rolling from the deck.
- (vi) Log hauls and slips.
- (A) Walkways along log hauls shall have a standard handrail on the outer edge, and cleats or other means to assure adequate footing and enable employees to walk clear of the log chute.
 - (B) Log haul bull chains or cable shall be designed, installed, and maintained to provide adequate safety for the work need.
 - (C) Log haul gear and bull chain drive mechanism shall be guarded.

- (D) Substantial troughs for the return strand of log haul chains shall be provided over passageways.
 - (E) Log haul controls shall be located and identified to operate from a position where the operator will, at all times, be in the clear of logs, machinery, lines, and rigging. In operations where control is by lever exposed to incoming logs, the lever shall be arranged to operate the log haul only when moved toward the log slip or toward the log pond.
 - (F) A positive stop shall be installed on all log hauls to prevent logs from traveling too far ahead in the mill.
 - (G) Overhead protection shall be provided for employees working below logs being moved to the log deck.
 - (H) Log wells shall be provided with safeguards to minimize the possibility of logs rolling back into well from log deck.
- (3) Log decks.
- (i) Access. Safe access to the head rig shall be provided.
 - (ii) Stops. Log decks shall be provided with adequate stops, chains, or other safeguards to prevent logs from rolling down the deck onto the carriage or its runway.
 - (iii) Barricade. A barricade or other positive stop of sufficient strength to stop any log shall be erected between the sawyer's stand and the log deck.
 - (iv) Loose chains. Loose chains from overhead canting devices or other equipment shall not be allowed to hang over the log deck in such manner as to strike employees.
 - (v) Swing saws. Swing saws on log decks shall be equipped with a barricade and stops for protection of employees who may be on the opposite side of the log haul chute.
 - (vi) Drag saws. Where reciprocating log cutoff saws (drag saws) are provided, they shall not project into walkway or aisle.
 - (vii) Circular cutoff saws. Circular log bucking or cutoff saws shall be so located and guarded as to allow safe entrance to and exit from the building.

(viii) Entrance doorway. Where the cutoff saw partially blocks the entrance from the log haul runway, the entrance shall be guarded.

(4) Mechanical barkers.

- (i) Rotary barkers. Rotary barking devices shall be so guarded as to protect employees from flying chips, bark, or other extraneous material.
- (ii) Elevating ramp. If an elevating ramp or gate is used, it shall be provided with a safety chain, hook, or other means of suspension while employees are underneath.
- (iii) Area around barkers. The hazardous area around ring barkers and their conveyors shall be fenced off or posted as a prohibited area for unauthorized persons.
- (iv) Enclosing hydraulic barkers. Hydraulic barkers shall be enclosed with strong baffles at the inlet and outlet. The operator shall be protected by adequate safety glass or equivalent.
- (v) Holddown rolls. Holddown rolls shall be installed at the infeed and outfeed sections of mechanical ring barkers to control the movement of logs.

(e) Log breakdown and related machinery and facilities.

(1) Log carriages and carriage runways.

- (i) Bumpers. A substantial stop or bumper with adequate shock-absorptive qualities shall be installed at each end of the carriage runway.
- (ii) Footing. Rider-type carriages shall be floored to provide secure footing and a firm working platform for the block setter.
- (iii) Sheave housing. Sheaves on rope-driven carriages shall be guarded at floor line with substantial housings.
- (iv) Carriage control. A positive means shall be provided to prevent unintended movement of the carriage. This may involve a control locking device, a carriage tie-down, or both.
- (v) Barriers and warning signs. A barrier shall be provided to prevent employees from entering the space necessary for travel of the carriage, with headblocks fully retracted, for the full length and extreme ends of carriage runways. Warning signs shall be posted at possible entry points to this area.

- (vi) Overhead clearance. For a rider-type carriage adequate overhead clear space above the carriage deck shall be provided for the full carriage runway length.
 - (vii) Sweeping devices. Carriage track sweeping devices shall be used to keep track rails clear of debris.
 - (viii) Dogs. Dogging devices shall be adequate to secure logs, cants, or boards, during sawing operations.
- (2) Head saws.
- (i) Band head saws.
 - (A) Band head saws shall not be operated at speeds in excess of those recommended by the manufacturer
 - (B) Band head saws shall be thoroughly inspected for cracks, splits, broken teeth, and other defects. A bandsaw with a crack greater than one-tenth the width of the saw shall not be placed in service until width of saw is reduced to eliminate crack, until cracked section is removed, or crack development is stopped.
 - (C) Provisions shall be made for alerting and warning employees before starting band head saws, and measures shall be taken to insure that all persons are in the clear.
 - (ii) Bandsaw wheels.
 - (A) No bandsaw wheel shall be run at a peripheral speed in excess of that recommended by the manufacturer. The manufacturer's recommended maximum speed shall be stamped in plainly legible figures on some portion of the wheel.
 - (B) Band head saw wheels shall be subjected to monthly inspections. Hubs, spokes, rims, bolts, and rivets shall be thoroughly examined in the course of such inspections. A loose or damaged hub, a rim crack, or loose spokes shall make the wheel unfit for service.

- (C) Band wheels shall be completely encased or guarded, except for a portion of the upper wheel immediately around the point where the blade leaves the wheel, to permit operator to observe movement of equipment. Necessary ventilating and observation ports may be permitted. Substantial doors or gates are allowed for repair, lubrication, and saw changes; such doors or gates shall be closed securely during operation. Band head rigs shall be equipped with a saw catcher or guard of substantial construction.
- (iii) Single circular head saws.
- (A) Circular head saws shall not be operated at speeds in excess of those specified by the manufacturer. Maximum speed shall be etched on the saw.
- (B) Circular head saws shall be equipped with safety guides which can be readily adjusted without use of hand tools.
- (C) The upper saw of a double circular mill shall be provided with a substantial hood or guard. A screen or other suitable device shall be placed so as to protect the sawyer from flying particles.
- (D) All circular sawmills where live rolls are not used behind the head saw shall be equipped with a spreader wheel or splitter.
- (iv) Twin circular head saws. Twin circular head saw rigs such as scrag saws shall meet the specifications for single circular head saws in paragraph (e)(2)(iii) of this section where applicable.
- (v) Whole-log sash gang saws (Swedish gangs).
- (A) Cranks, pitman rods, and other moving parts shall be adequately guarded.
- (B) Feed rolls shall be enclosed by a cover over the top, front, and open ends except where guarded by location. Drive mechanism to feed rolls shall be enclosed.
- (C) Carriage cradles of whole-log sash gang saws (Swedish gangs), shall be of adequate height to prevent logs from kicking out while being loaded.
- (3) Resaws.
- (i) Band resaws. Band resaws shall meet the specifications for band head saws as required by paragraph (e)(2)(i) of this section.

- (ii) Circular gang resaws.
 - (A) Banks of circular gang resaws shall be guarded by a hood.
 - (B) Circular gang resaws shall be provided with safety fingers or other antikickback devices.
 - (C) Circular gang resaws shall not be operated at speeds exceeding those recommended by the manufacturer.
 - (D) Reserved.
 - (E) Feed rolls shall be guarded.
 - (F) Each circular gang resaw, except self-feed saws with a live roll or wheel at back of saw, shall be provided with spreaders.
- (iii) Sash gang resaws. Sash gang resaws shall meet the safety specifications of whole-log sash gang saws in accordance with the requirements of paragraph (e)(2)(v) of this section.
- (4) Trimmer saws.
 - (i) Maximum speed. Trimmer saws shall not be run at peripheral speeds in excess of those recommended by the manufacturer.
 - (ii) Guards.
 - (A) Trimmer saws shall be guarded in front by adequate baffles to protect against flying debris and they shall be securely bolted to a substantial frame. These guards for a series of saws shall be set as close to the top of the trimmer table as is practical.
 - (B) The end saws on trimmer shall be guarded.
 - (C) The rear of trimmer saws shall have a guard the full width of the saws and as much wider as practical.
 - (iii) Safety stops. Automatic trimmer saws shall be provided with safety stops or hangers to prevent saws from dropping on table.
- (5) Edgers.
 - (i) Location.
 - (A) Where vertical arbor edger saws are located ahead of the main saw, they shall be so guarded that an employee cannot contact any part of the edger saw from his normal position.

(B) Edgers shall not be located in the main roll case behind the head saws.

(ii) Guards.

(A) The top and the openings in end and side frames of edgers shall be adequately guarded and gears and chains shall be fully housed. Guards may be hinged or otherwise arranged to permit oiling and the removal of saws.

(B) All edgers shall be equipped with pressure feed rolls.

(C) Pressure feed rolls on edgers shall be guarded against accidental contact.

(iii) Antikickback devices.

(A) Edgers shall be provided with safety fingers or other approved methods of preventing kickbacks or guarding against them. A barricade in line with the edger, if properly fenced off, may be used if safety fingers are not feasible to install.

(B) A controlling device shall be installed and located so that the operator can stop the feed mechanism without releasing the tension of the pressure rolls.

(iv) Operating speed of live rolls. Live rolls and tailing devices in back of edger shall operate at a speed not less than the speed of the edger feed rolls.

(6) Planers.

(i) Guards.

(A) All cutting heads shall be guarded.

(B) Side head hoods shall be of sufficient height to safeguard the head setscrew.

(C) Pressure feed rolls and "pineapples" shall be guarded.

(D) Levers or controls shall be so arranged or guarded as to reduce the possibility of accidental operation.

(f) Dry kilns and facilities.

(1) Kiln foundations. Dry kilns shall be constructed upon solid foundations to prevent tracks from sagging

- (2) Passageways. A passageway shall be provided to give adequate clearance on at least one side or in the center of end-piled kilns and on two sides of cross-piled kilns.
- (3) Doors.
- (i) Main kiln doors.
- (A) Main kiln doors shall be provided with a method of holding them open while kiln is being loaded.
- (B) Counterweights on vertical lift doors shall be boxed or otherwise guarded.
- (C) Adequate means shall be provided to firmly secure main doors, when they are disengaged from carriers and hangers, to prevent toppling.
- (ii) Escape doors.
- (A) If operating procedures require access to kilns, kilns shall be provided with escape doors that operate easily from the inside, swing in the direction of exit, and are located in or near the main door at the end of the passageway.
- (B) Escape doors shall be of adequate height and width to accommodate an average size man.
- (4) Pits. Pits shall be well ventilated, drained, and lighted, and shall be large enough to safely accommodate the kiln operator together with operating devices such as valves, dampers, damper rods, and traps.
- (5) Steam mains. All high-pressure steam mains located in or adjacent to an operating pit shall be covered with heat-insulating material.
- (6) Ladders. A fixed ladder, complying with the requirements of Subpart D of this part or other adequate means, shall be provided to permit access to the roof. Where controls and machinery are mounted on the roof, a permanent stairway with standard handrail shall be installed in accordance with the requirements in Subpart D.
- (7) Chocks. A means shall be provided for chocking or blocking cars.
- (8) Kiln tender room. A warm room shall be provided for kiln employees to stay in during cold weather after leaving a hot kiln.

[39 FR 23502, June 27, 1974, as amended at 40 FR 23073, May 28, 1975; 43 FR 49751, Oct. 24, 1978; 43 FR 51760, Nov. 7, 1978; 53 FR 12123, Apr. 12, 1988; 55 FR 32015, Aug. 6, 1990; 61 FR 9241, Mar. 7, 1996; 63 FR 33467, June 18, 1998; 70 FR 53929, Sept. 13, 2005; 76 FR 80739, Dec. 27, 2011; 81 FR 83006, Nov. 18, 2016.]

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 7-1993, f. 6/8/93, ef. 8/1/93.

OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.

OR-OSHA Admin. Order 4-1999, f. 4/30/99, ef. 4/30/99.

OR-OSHA Admin. Order 4-2005, f. 12/14/05, ef. 12/14/05.

OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.

OR-OSHA Admin. Order 2-2017, f. 5/16/17, ef. 11/1/17.

437-002-0313 (4) Transfers and Tracks

- (a) Guardrails and handrails shall be installed on and about transfers and transfer tracks wherever necessary for the safety of workers.*
- (b) Cars shall not be moved while workers are in the bight of tow lines.*
- (c) Tracks shall be clear of obstructions before rail cars are moved.*

(5) Green Chains, Sorting Tables

- (a) Green chains and similar equipment shall be provided with a stopping device which is readily accessible to one or more persons working on the chain.*
- (b) A toeboard not less than six inches in height of nominal two by six inch material shall be installed on the vertical face of all green chain and sorting tables.*
- (c) The flow of lumber or other materials on sorting tables and green chain shall be regulated as evenly as possible.*
- (d) Rollers or other devices shall be provided for removing heavy material from the chain or table.*
- (e) Workers shall not cross over operating conveyors, rolls, or belts unless elevated crossovers are provided for this purpose.*

(6) Transfer Rolls

- (a) Power driven rolls shall be operated in a manner to prevent end collisions.*
- (b) The space between live rolls, for a distance of at least one roll on either side of cross-overs or walkways, shall be filled in with substantial material.*
- (c) Live roll sprockets, chains, gears and drive shafts shall be guarded wherever exposed to contact.*

(d) Live rolls shall be replaced when a hole (sufficient to impair its strength, or catch clothing) has developed.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: WCB Admin. Order No. 37-1974, f. 9/16/74, ef. 11/15/74.
OR-OSHA Admin. Order 7-1993, f. 6/8/93, ef. 8/1/93.
OR-OSHA Admin. Order 3-1996, f. 7/22/96, ef. 7/22/96.

437-002-0314 Veneer And Plywood Machinery

Note: 1910.265(c) and (d) also apply to Veneer and Plywood Machinery. (See OAR 437-002-0313(1).)

(1) Purpose. The purpose of this rule is to prescribe minimum requirements for veneer and plywood operations.

(2) Veneer Lathe.

(a) A mechanical lock shall be provided to prevent the back-up roll from closing until activated by the operator.

(b) A guard or positive interlock and necessary hydraulic or air controls shall be provided to prevent forward movement of the charger, if such movement may be hazardous.

(c) Positive means shall be provided to hold the head in the open position while servicing the knife.

(d) A protective device for the knife edge shall be provided for use when transporting the knife.

(e) Where there is a hazard from "exploding" logs, both lathe operator's and charger operator's stations shall be protected against flying slabs and chips.

(f) Means shall be provided in the knife grinding area to drain cleaning or cooling liquids from the work station.

(g) Knives and other cutting equipment shall be stored in planned storage areas.

(h) The area under the elevating ramp (tipple) from the lathe to the stock trays shall be guarded to prevent entrance while the lathe is in operation.

(3) Veneer Slicer. The veneer slicer knife shall be guarded at front and rear to prevent accidental contact with the knife edge.

(4) Veneer Clipper.

- (a) Clippers shall be provided with a guard on both infeed and outfeed sides to protect the employees.*
- (b) Each operating treadle for veneer clippers shall be covered by a device which is adequate to avoid accidental activation or tripping.*
- (5) Veneer Cutter.*
- (a) Power-driven guillotine veneer cutters (except continuous feed trimmers) shall be equipped with the following:*
- (A) A starting device which requires the simultaneous action of both hands to start the cutting motion, and at least one hand on a control during the complete stroke of the knife; or*
- (B) An automatic device which will remove the hands of the operator from the danger zone at every descent of the blade used in conjunction with one-hand starting devices which require two distinct movements of the device to start the cutting motion.*
- (b) All power-driven veneer cutters shall be so designed that the knife positively returns to the starting position after each complete cycle of the knife.*
- (c) Where two or more workers are employed at the same time on the same power-driven guillotine veneer cutter equipped with two-hand control, the device shall be so arranged that each worker shall be required to use both hands simultaneously on the controls to start the cutting motion, and at least one hand on a control to complete the cut.*
- Note:** The controls should be of a type that cannot be defeated by tying down one of them.*
- (d) In addition to the brake or other stopping mechanism, a nonrepeat device shall be provided which will prevent the machine from operating in the event of a mechanical failure.*
- (e) Where no other device serves as protection, a guard running the length of the knife shall be installed on the infeed side.*
- (f) A protective device, such as side shields, shall be provided on the outfeed side.*
- (g) A protective device for the knife edge shall be provided for use when transporting the knife.*

(h) Positive means of opening and locking the control circuit and supporting the mechanism in the "up" position shall be provided for use during knife changes.

(i) When the hold-down clamp and knife are in their uppermost positions, the knife edge shall not extend below the lower edge of the hold-down clamp.

(6) Tray System.

(a) The tray system shall be equipped with controls at each end so that the system cannot be operated unless both switches are in the "on" position.

(b) A walkway shall be constructed the entire length of the trays so that the top tray can be reached in the event of a "plug-up" without having to climb up the frames.

(7) Veneer Dryer.

(a) A standard stairway and catwalk across the tray lines shall be constructed to provide safe access in the event of a "plug-up" and dryer feed controls, including a positive lockout, shall be provided at the feeders' station.

(b) Steam lines outside the dryer which may be contacted by personnel shall be insulated or enclosed.

(c) Suitable gloves and aprons shall be worn by workers off-bearing veneer from chain or table.

(d) Where a band saw is used to trim panel core, it shall be guarded in accordance with 1910.265(e)(2)(ii)(C).

(8) Hot Press or Veneer Press.

(a) Steam lines which may be contacted by personnel shall be insulated or enclosed.

(b) Standard guardrails shall be provided on the ends of loading and unloading elevators or hoist platforms or both. (See Division 2/D.)

(c) Hot-press hoists shall be provided with a braking and holding mechanism which will operate automatically in case of failure of lifting chains or cables.

(d) On a hot-press equipped with an automatic charger, an electrically interlocked gate or chain shall be provided across the opening between the charger and the press which, when opened, will open the circuit to prevent the charger from moving.

- (e) Where two workers are employed in loading the press, closing control devices shall be provided within reach of each work station, so interconnected as to require activation of both controls to operate the press, and a quick opening device shall be provided at each station on the press hoist platform.*
- (f) Floor openings on non-working sides of press and pit shall be protected with standard guardrails. (See Division 2/D.)*
- (g) Means shall be provided for safe access into the press pit, the top of the press, and each side, and a positive means of blocking up the hoist platform.*
- (9) Stripsaw and Patch Machine.*
- (a) An antikickback device and hood guard shall be provided on the veneer stripsaw.*
- (b) The patch machine shall be guarded to prevent operator's hands from entering the punch area, and the foot treadle shall be guarded.*
- (10) Veneer Chipper and Hogs.*
- (a) The top feed roll shall be equipped with a guard and a shield or panel shall be provided on the operator's side to prevent operator from reaching the roll.*
- (b) Chippers and hogs shall be guarded in accordance with 1910.265(c)(20)(i) through (c)(21)(ii)(C). Feed conveyors to chippers and hogs shall be guarded in accordance with OAR 437-002-0313(2).*
- (11) Electronic Laminating Press and Edge Gluer.*
- (a) Interlocked gates shall be provided on infeed and outfeed sides of batch-type presses which are interlocked to prevent power being activated until gates are completely lowered.*
- (b) Shielding shall be provided to protect against harmful exposure to radiation that may be emitted.*
- (c) All screens and filters shall be equipped with interlocks which will shut off all power in the event they are removed.*
- (12) Edge Gluer Jointer.*
- (a) A barrier shall be installed at the end of the travel of the head to prevent flying splinters from injuring personnel.*

- (b) A gate shall be installed to prevent access between the edge gluer jointer and the grasshopper, so arranged that when the gate is opened, all electricity, air, and hydraulic lines will be shut off and the cylinders bled.*
- (c) A device should be positioned across the front of the infeed nip point, so arranged as to shut off the equipment if contact is made with it.*
- (13) Wide Belt Sanders. Wide-belt sanders shall be equipped with non-kickback fingers and a barrier at the infeed side adjusted to prevent more than one panel entering the sander at a time.*

Stat. Auth.: ORS 654.025(2) and 656.726(4)
Stats. Implemented: ORS 654.001 through 654.295.
Hist: WCB Admin. Order No. 37-1974, f. 9/16/74, ef. 11/15/74.
OR-OSHA Admin. Order 7-1993, f. 6/8/93, ef. 8/1/93.
OR-OSHA Admin. Order 2-2017, f. 5/16/17, ef. 11/1/17.

437-002-0315 Shake And Shingle Machinery

Note: 1910.265(c) and (d) also apply to Shake and Shingle Machinery. (See OAR 437-002-0313(1).)

- (1) Purpose. The purpose of this rule is to prescribe minimum requirements for shake and shingle manufacturing operations.*
- (2) Definitions applicable to shake and shingle machinery:*
- Blocks** shall mean those sections of a log cut in various lengths;*
- Blocks and bolts** may be considered to be synonymous;*
- Clipper saw** shall mean a circular saw used to trim manufactured shingles;*
- Groover** shall mean a cylinder-type knife (knives) similar to a planer knife (knives), used to cut grooves into the face surface of shakes or shingles;*
- Hip and Ridge saw** shall mean a circular saw used to cut various angles on the side edge of shakes or shingles;*
- Johnson Bar** shall mean a shaft used to control the feed of the carriage;*
- Knee bolter circular saw** shall mean a stationary circular saw used to trim and debark blocks (the blocks are manually maneuvered onto a carriage and fed into a saw);*
- Log haul** shall mean a power conveyor used to move logs into position to cut into blocks;*

Packers shall mean employees who pack the manufactured shakes or shingles into bundles;

Pantograph power splitter shall mean a hydraulically operated wedge, manually positioned into place, used to split blocks;

Power saw splitter shall mean a stationary circular saw used to split (saw) blocks, (the blocks are manually maneuvered onto a carriage and fed into the saw);

Set works shall mean a component of the shingle machine, located on the machine frame, used to control the thickness of each shingle being manufactured;

Shake machine shall mean a band saw used to cut shake blanks into manufactured shakes;

Shake splitter shall mean a stationary hydraulically operated wedge, manually controlled, used to split shake blocks into shake blanks;

Shim saw shall mean a circular saw used to re-cut manufactured shingles into narrow widths;

Shingle machine shall mean a machine used to manufacture shingles; composed of a feed, set works, and carriage system, all functioning in relation to a circular saw;

Shingle saw shall mean a circular saw used to cut shingles from blocks;

Spault shall mean the first and last section(s) of block as it is cut into shingles;

Spault catcher shall mean a device located on the shingle machine next to the solid feed rolls, used to hold the last section of each block being cut (called a spault), in place;

Track or swing cut off saw shall mean a circular saw used to cut blocks from a log.

(3) **Track or Swing Cut Off Circular Saw.**

(a) A power operated track or swing cut off circular saw shall have controls so arranged that operators are not positioned directly in front of the saw while making a cut.

(b) All track or swing cut off circular saws shall be completely encased or guarded when the saw is in the retract position, except for that portion of the guard that must be left open for the operation of the saw.

(c) Track or swing cut off circular saw guards shall be constructed of sheet metal not less than 1/8 inch thick, or a wood guard of not less than nominal two-inch thick wood material, or equivalent.

***Note:** Hinged or removable doors or gates will be permitted where necessary to permit adjusting and oiling.*

(d) The driving belts on the track or swing cut off circular saw shall be guarded.

(e) A safety catch shall be provided to prevent the track cut off saw from leaving the track.

(4) Overhead Deck Splitter – Pantograph.

(a) Pantograph splitters shall have a shroud incorporated on the upper pressure plate to eliminate the possibility of the splitter moving from the operating area. This shroud shall be constructed of substantial design with a minimum width of three inches and a minimum thickness of 3/8 inch.

(b) Mechanically operated overhead splitters shall have handles moving opposite the stroke of the piston.

(c) When the leading edge of the pantograph splitter is completely extended, the minimum clearance from the deck to the splitting edge shall be 2 inches.

(5) Power Splitter Saw. Power splitters shall have spreaders behind the saw to prevent materials from squeezing the saw or being thrown back on the operator. The top of the saw shall be completely covered.

(6) Knee Bolter Circular Saw.

(a) A safety catch shall be provided to prevent the bolter carriage from leaving the track.

(b) Bolter saws shall be provided with a canopy guard of sheet metal not less than 1/8 inch thick, or cast iron guard not less than 3/16 inch thick or a wood guard of not less than nominal two-inch thick wood material or equivalent;

(A) Such guard shall completely enclose the rear portion of the saw;

(B) It shall be so arranged and adjusted as to cover the front of the saw; not to exceed 20 inches from the top of the carriage to the bottom of the guard on 16 inch and 18 inch blocks and 26 inches on 24 inch blocks, of the material being cut;

- (c) Knee bolter saws shall be provided with wipers of belting or other suitable material. These wipers shall be installed on both sides of the saw in such a manner as to deflect knots, chips, slivers, etc., that are carried by the saw;*
 - (d) A positive device shall be provided and used to manually lock and hold the feed table of knee bolter saws in the neutral position when not in use;*
 - (e) That portion of all saws which is below and behind the saw table shall be effectively guarded by the exhaust hood or other device;*
 - (f) Hinged or removable doors or gates will be permitted where necessary to permit adjusting and oiling.*
- (7) Shake Machinery.*
- (a) Shake Splitters:*
 - (A) A positive de-energizing device shall be provided within ready reach of each shake splitter operator;*
 - (B) Each shake splitter shall be provided with an adjustable stroke limiter to eliminate the splitting blade from striking the table;*
 - (C) All splitters shall have a minimum clearance of 4 inches, from the splitting edge to the table surface, when the splitter is in the extended position;*
 - (D) All splitter tables shall have a friction surface to reduce kick out of the material being split;*
 - (E) Shake splitters shall not be operated at a speed that would cause chunks to be thrown in such a manner as to create a hazard to the operator;*
 - (F) The use of foot pedal (treadle) mechanisms shall be provided with protection to prevent unintended operation from falling or moving objects or by accidental stepping onto the pedal:*
 - (i) The pedal shall have a nonslip surface;*
 - (ii) The pedal return spring shall be of the compression type, operating on a rod or guided within a hole or tube, or designed to prevent interleaving of spring coils in event of breakage;*
 - (iii) If pedal counterweights are provided, the path of the travel of the weight shall be enclosed.*

(b) Shake Saw Guards.

- (A) Every shake band saw shall be equipped with a saw guard on both sides of the blade down to the top side of the guide;*
- (B) The outside saw guard shall extend a minimum of 3-1/2 inches below the bottom edge of the saw guide;*
- (C) The maximum opening between the saw guide and table rolls shall be 15 inches.*

(c) Shake Saw Band Wheel Guards.

- (A) The band wheels on all shake band saws shall be completely encased or guarded on both sides;*
- (B) The guards shall be constructed of not less than No. 14 U. S. gauge metal or material equal in strength;*
- (C) The metal doors, on such guards, shall have a wood liner of a minimum thickness of 1/2 inch.*

(d) Shake Saw Band Wheels Speed and Maintenance.

- (A) No band wheel shall be run at a peripheral speed in excess of that recommended by the manufacturer;*
- (B) Each band wheel shall be carefully inspected at least once a month by management;*
- (C) Any band wheel in which a crack is found in the rim or in a spoke shall be immediately discontinued from service until properly repaired;*
- (D) Each band saw frame shall be provided with a tension indicator.*

(8) Upright Shingle Machine.

(a) Upright Shingle Saw Guards.

- (A) Every shingle machine carriage shall be equipped with a hand guard which:
 - (i) Projects at least 1 inch beyond the cutting edge of the saw;*
 - (ii) Shall be located not more than 1/2 inch from the side of the saw blade.**

- (B) Shingle saw guards shall have a rim guard so designed and installed as to prevent chips and knots from flying from the saws. Such guards shall cover the edge of the saw to at least the depth of the teeth, except such part of the cutting edge as is essential for sawing the material.*
- (C) Saws, arbors, and couplings shall be guarded;*
- (D) Every part of a clipper saw, except that part which is exposed to trim shingles, shall be enclosed by a guard, so designed and installed to prevent contact with the clipper saw. An additional guard shall be installed not more than 4 inches above the clipper board and not more than 1/2 inch from the vertical plane of the saw;*
- (E) The underside of clipper saw boards shall be equipped with a substantial finger guard to effectively protect the operator's fingers. The guard shall be a minimum of five inches long and 1-1/4 inches deep.*
- (b) Upright Carriage Guards.*
- (A) Automatic revolving cam set works and rocker arms, on machine frame, shall be guarded where exposed to contact;*
- (B) The spault catchers shall be not less than 3/16 inch thick and kept sharp at all times. Missing teeth shall be replaced;*
- (c) Carriage Feed Works.*
- (A) The pinion gear, bull wheel and Johnson bar operating the same carriage, shall be guarded where exposed to contact;*
- (B) Each shingle machine clutch treadle shall be arranged so that it is necessary to manually operate the treadle to start the machine;*
- (i) The use of devices to permit the automatic starting of the machine when the jaw treadle is released is prohibited;*
- (ii) The carriage shall have a brake to hold it in a neutral position;*
- (C) Carriage speed shall not exceed 34 strokes per minute.*
- (9) Related Shake and Shingle Sawing Machinery.*
- (a) Flat or Taper Saw. A wood or metal guard or its equivalent shall be secured to the sliding table at the side nearest the sawyer to protect him/her from contact with the cutting edge of the saw when a block is not in the cut;*

(b) Hip and Ridge Saws.

(A) The hip and ridge saws shall be guarded with a hood-like device;

(B) This guard shall cover that portion of the saw not needed to cut the material, located above the cutting table;

(C) The remaining portion of the saw, located below the table, shall be effectively guarded.

Note: The above rule is applicable to both shake and shingle hip and ridge saws.

(c) Shim Stock Saws. The top ends and sides of the shim stock saws shall be guarded;

(d) Shake or Shingle Groover. The top ends and sides of the groover, to include the press rolls, shall be guarded;

(e) Mechanical Power Transmission Machinery. All mechanical power transmission equipment shall be guarded in accordance with the requirements of Division 2, Subdivision O, Machinery and Machine Guarding.

(10) Circular Saws, Speeds, and Repairs.

(a) Maximum Allowable Speeds.

(A) No circular saw shall be run at a speed in excess of that recommended by the manufacturer;

(B) The manufacturer's recommended speed shall be etched or otherwise permanently marked on the blade, and that speed shall not be exceeded.

(b) Repairs and Reconditioning.

(A) Shingle saws when reduced in size to less than 40 inches in diameter shall be discontinued from service as shingle saws on upright or vertical machines;

(B) Shingle saws may be reconditioned for use as clipper saws, provided the surfaces are reground and the proper balance attained;

(C) Shingle saws may be used to no less than 36 inches on flat or taper saw machines.

(c) Operations.

- (A) Workers shall not leave shingle machines unattended while the carriage is in motion:*
- (i) Chunks may be placed horizontally 1 tier high on top of shingle blocks; (ii) Shingle blocks shall be piled in a stable manner, not more than 72 inches high, within the immediate working area of the shingle sawyer or the area shall be barricaded.*
- (B) Provisions shall be made to prevent blocks from falling into the packing area;*
- (C) On each machine operated by electric motors, positive means shall be provided for rendering such controls or devices inoperative while repairs or adjustments are being made to the machines they control;*
- (D) Workers shall not stand on top of blocks while in the process of splitting such blocks into bolts.*

Stat. Auth.: ORS 654.025(2) and 656.726(3).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: OR-OSHA Admin. Order No. 7-1993, f. 6/8/93, ef. 8/1/93.

1910.266 Pulpwood Logging

Note: In Oregon, Pulpwood Logging rules are provided in OAR 437, Division 7, Forest Activities.

1910.267 Agricultural Operations (Reserved)

Note: In Oregon, Division 4, Agriculture, applies.

1910.268 Telecommunications

(a) Application.

Note: Federal rule 1910.268(a)(1), was NOT adopted by OR-OSHA. Instead, OAR 437-002-0316(1) applies:

437-002-0316 Oregon Rules For Telecommunications

(1) Application. This division sets forth safety and health standards that apply to the work conditions, practices, means, methods, operations, installations, and processes performed at telephone, TV cable, and other signaling equipment centers and installations, and at field installations used to transmit or control communication or other signals of the service supplier and may be located outdoors or in building spaces used for such field installations.

"Center" work includes the installation, operation, maintenance, rearrangement, and removal of communications equipment and other associated equipment in telecommunications switching centers. "Field" work includes the installation, operation, maintenance, rearrangement, and removal of conductors and other equipment used for signal or communication service, and of their supporting or containing structures, overhead or underground on public or private rights of way, including buildings or other structures.

1910.268 (a)(2) These standards do not apply:

(i) To construction work, as defined in 1910.12, nor

(ii) to installations under the exclusive control of electric utilities used for the purpose of communications or metering, or for generation, control, transformation, transmission, and distribution of electric energy, which are located in buildings used exclusively by the electric utilities for such purposes, or located outdoors on property owned or leased by the electric utilities or on public highways, streets, roads, etc., or outdoors by established rights on private property.

(3) Operations or conditions not specifically covered by this section are subject to all the applicable standards contained in this Part 1910. See 1910.5(c). Operations which involve construction work, as defined in 1910.12 are subject to all the applicable standards contained in Part 1926 of this chapter.

(b) General.

(1) Buildings containing telecommunications centers.

- (i) Illumination. Lighting in telecommunication centers shall be provided in an adequate amount such that continuing work operations, routine observations, and the passage of employees can be carried out in a safe and healthful manner. Certain specific tasks in centers, such as splicing cable and the maintenance and repair of equipment frame lineups, may require a higher level of illumination. In such cases, the employer shall install permanent lighting or portable supplemental lighting to attain a higher level of illumination shall be provided as needed to permit safe performance of the required task.
- (ii) Working surfaces. Guardrails and toeboards may be omitted on distribution frame mezzanine platforms to permit access to equipment. This exemption applies only on the side or sides of the platform facing the frames and only on those portions of the platform adjacent to equipped frames.
- (iii) Working spaces. "Maintenance aisles," or "wiring aisles," between equipment frame lineups are working spaces and are not a means of egress for purposes of OAR 437-002-0041.
- (iv) Special doors. When blastproof or power actuated doors are installed in specially designed hardsite security buildings and spaces, they shall be designed and installed so that they can be used as a means of egress in emergencies.
- (v) Equipment, machinery and machine guarding. When power plant machinery in telecommunications centers is operated with commutators and couplings uncovered, the adjacent housing shall be clearly marked to alert personnel to the rotating machinery.

(2) Battery handling.

- (i) Eye protection devices which provide side as well as frontal eye protection for employees shall be provided when measuring storage battery specific gravity or handling electrolyte, and the employer shall ensure that such devices are used by the employees. The employer shall also ensure that acid resistant gloves and aprons shall be worn for protection against spattering. Facilities for quick drenching or flushing of the eyes and body shall be provided unless the storage batteries are of the enclosed type and equipped with explosion proof vents, in which case sealed water rinse or neutralizing packs may be substituted for the quick drenching or flushing facilities. Employees assigned to work with storage batteries shall be instructed in emergency procedures such as dealing with accidental acid spills.
- (ii) Electrolyte (acid or base, and distilled water) for battery cells shall be mixed in a well ventilated room. Acid or base shall be poured gradually, while stirring, into the water. Water shall never be poured into concentrated (greater than 75 percent) acid solutions. Electrolyte shall never be placed in metal containers nor stirred with metal objects.
- (iii) When taking specific gravity readings, the open end of the hydrometer shall be covered with an acid resistant material while moving it from cell to cell to avoid splashing or throwing the electrolyte.

Note: Federal rule 1910.268(b)(3), was NOT adopted by OR-OSHA. Instead, OAR 437, Division 2/K, OAR 437-002-0161, Medical Services and First Aid, applies.
- (4) Hazardous materials. Highway mobile vehicles and trailers stored in garages in accordance with 1910.110 may be equipped to carry more than one LP-gas container, but the total capacity of LP-gas containers per work vehicle stored in garages shall not exceed 100 pounds of LP-gas. All container valves shall be closed when not in use.
- (5) Compressed gas. When using or transporting nitrogen cylinders in a horizontal position, special compartments, racks, or adequate blocking shall be provided to prevent cylinder movement. Regulators shall be removed or guarded before a cylinder is transported.
- (6) Support structures. No employee, or any material or equipment, may be supported or permitted to be supported on any portion of a pole structure, platform, ladder, walkway or other elevated structure or aerial device unless the employer ensures that the support structure is first inspected by a competent person and it is determined to be adequately strong, in good working condition and properly secured in place.

- (7) Approach distances to exposed energized overhead power lines and parts. The employer shall ensure that no employee approaches or takes any conductive object closer to any electrically energized overhead power lines and parts than prescribed in Table R-2, unless:
- (i) The employee is insulated or guarded from the energized parts (insulating gloves rated for the voltage involved shall be considered adequate insulation), or
 - (ii) The energized parts are insulated or guarded from the employee and any other conductive object at a different potential, or
 - (iii) The power conductors and equipment are deenergized and grounded.

Table R 2 - Approach Distances to Exposed Energized Overhead Power Lines and Parts

Voltage range (phase to phase, RMS)	Approach distance (inches)
300 V and less	Avoid contact
Over 300 V, not over 750 V	12
Over 750 V, not over 2 kV	18
Over 2 kV, not over 15 kV	24
Over 15 kV, not over 37 kV	36
Over 37 kV, not over 87.5 kV	42
Over 87.5 kV, not over 121 kV	48
Over 121 kV, not over 140 kV	54

- (8) Illumination of field work. Whenever natural light is insufficient to adequately illuminate the work site, artificial illumination shall be provided to enable the employee to perform the work safely.

(c) Training. Employers shall provide training in the various precautions and safe practices described in this section and shall insure that employees do not engage in the activities to which this section applies until such employees have received proper training in the various precautions and safe practices required by this section. However, where the employer can demonstrate that an employee is already trained in the precautions and safe practices required by this section prior to his employment, training need not be provided to that employee in accordance with this section. Where training is required, it shall consist of on-the-job training or classroom-type training or a combination of both. The employer shall certify that employees have been trained by preparing a certification record which includes the identity of the person trained, the signature of the employer or the person who conducted the training, and the date the training was completed. The certification record shall be prepared at the completion of training and shall be maintained on file for the duration of the employee's employment. The certification record shall be made available upon request to the Assistant Secretary for Occupational Safety and Health. Such training shall, where appropriate, include the following subjects:

- (1) Recognition and avoidance of dangers relating to encounters with harmful substances and animal, insect, or plant life;
- (2) Procedures to be followed in emergency situations; and,
- (3) First aid training, including instruction in artificial respiration.

Note: See OAR 437, Division 2/K, Rule 437-002-0161, for Medical Services and First Aid requirements.

(d) Employee protection in public work areas.

Note: Federal rule 1910.268(d)(1), was NOT adopted by OR-OSHA. Instead, OAR 437-002-0316(2)(a) applies:

437-002-0316 (2) Employee protection in public work areas

(a) Before work is begun in the vicinity of vehicular or pedestrian traffic which may endanger employees, pedestrian and traffic control devices shall be provided for all operations on or adjacent to streets, alleys and walkways. The traffic control shall conform to the American National Standards Institute (ANSI) D6.1e-1989 Manual on Uniform Traffic Control Devices for Streets and Highways and the Oregon Department of Transportation's Short Term Work Zones Manual. Where further protection is needed, barriers shall be utilized. At night, warning lights shall be prominently displayed, and excavated areas shall be enclosed with protective barricades.

1910.268 (d)(2) If work exposes energized or moving parts that are normally protected, danger signs shall be displayed and barricades erected as necessary, to warn other personnel in the area.

437-002-0316 (2) Employee protection in public work areas

(b) Once a work area has been established, it shall be the employer's responsibility to provide adequate supervision and periodic surveillance to assure that the above requirements are met.

437-002-0316 (3) Before work is performed on overhead lines, underground (such as in manholes), or in buried plants, the employer or designated representative shall make a complete evaluation of the work location to determine if a hazard exists or could be created in the performance of the work. The employer or designated representative shall determine from this evaluation, a safe procedure for performing the work and those means or methods shall be implemented before the work proceeds. Examples of possible work site conditions that may be hazardous include, but are not limited to:

(a) Manhole, pit, and pole locations, street intersections, alleys and isolated areas;

(b) Weather and road conditions (such as ice, snow, and rain);

(c) Visibility;

(d) Time of day;

(e) Manhole atmosphere conditions (such as explosive gases, exhaust fumes, and oxygen deficiency);

(f) Jointly occupied manholes with foreign utilities; and

(g) Power hazards.

1910.268 (d)(3) The employer shall insure that an employee finding any crossed or fallen wires which create or may create a hazardous situation at the work area:

(i) Remains on guard or adopts other adequate means to warn other employees of the danger and

(ii) has the proper authority notified at the earliest practical moment.

(e) Tools and personal protective equipment – Generally. Personal protective equipment, protective devices and special tools needed for the work of employees shall be provided and the employer shall ensure that they are used by employees. Before each day's use the employer shall ensure that these personal protective devices, tools, and equipment are carefully inspected by a competent person to ascertain that they are in good condition.

437-002-0316 (4) All equipment, tools, and safety devices shall be installed, used and operated in accordance with the manufacturer's recommendations and operating instructions and its listing or labeling.

1910.268 (f) Rubber insulating equipment.

- (1) Rubber insulating equipment designed for the voltage levels to be encountered shall be provided and the employer shall ensure that they are used by employees as required by this section. The requirements of 1910.137, Electrical Protective Equipment, shall be followed except for Table I-6.
- (2) The employer is responsible for the periodic retesting of all insulating gloves, blankets, and other rubber insulating equipment. This retesting shall be electrical, visual and mechanical. The following maximum retesting intervals shall apply:

Gloves, blankets, and other insulating equipment	Natural rubber	Synthetic rubber
	Months	
New	12	18
Re-issued	9	15

- (3) Gloves and blankets shall be marked to indicate compliance with the retest schedule, and shall be marked with the date the next test is due. Gloves found to be defective in the field or by the tests set forth in paragraph (f)(2) of this section shall be destroyed by cutting them open from the finger to the gauntlet.

437-002-0316 (5) Reserved

(g) Personal climbing equipment.

- (1) General. A positioning system or a personal fall arrest system shall be provided and the employer shall ensure their use when work is performed at positions more than 4 feet (1.2 m) above the ground, on poles, and on towers, except as provided in paragraphs (n)(7) and (8) of this section. These systems shall meet the applicable requirements in subpart I of this part. The employer shall ensure that all climbing equipment is inspected before each day's use to determine that it is in safe working condition.
- (2) Pole climbers.
- (i) Pole climbers may not be used if the gaffs are less than 1-1/4 inches in length as measured on the underside of the gaff. The gaffs of pole climbers shall be covered with safety caps when not being used for their intended use.
 - (ii) The employer shall ensure that pole climbers are inspected by a competent person for the following conditions: Fractured or cracked gaffs or leg irons, loose or dull gaffs, broken straps or buckles. If any of these conditions exist, the defect shall be corrected before the climbers are used.
 - (iii) Pole climbers shall be inspected as required in this paragraph (g)(3) before each day's use and a gaff cut-out test performed at least weekly when in use.
 - (iv) Pole climbers may not be worn when:
 - (A) Working in trees (specifically designed tree climbers shall be used for tree climbing),
 - (B) Working on ladders,
 - (C) Working in an aerial lift,
 - (D) Driving a vehicle, nor
 - (E) Walking on rocky, hard, frozen, brushy or hilly terrain.
- (h) Ladders. Ladders, step bolts, and manhole steps shall meet the applicable requirements in Subpart D of this part.

437-002-0316 (6) Equipment

- (a) Ladder hooks. When ladder hooks are engaged the safety straps shall be lashed around the top rung and strand or otherwise secured to the strand.*

1910.268 (i) Other tools and personal protective equipment.

- (1) Head protection. Head protection meeting the requirements of ANSI Z89.2-1971, "Safety Requirements for Industrial Protective Helmets for Electrical Workers, Class B" shall be provided whenever there is exposure to possible high voltage electrical contact, and the employer shall ensure that the head protection is used by employees. ANSI Z89.2-1971 is incorporated by reference as specified in 1910.6.
- (2) Eye protection. Eye protection meeting the requirements of OAR 437-002-0134(8)(b) shall be provided and the employer shall ensure its use by employees where foreign objects may enter the eyes due to work operations such as but not limited to:
 - (i) Drilling or chipping stone, brick or masonry, breaking concrete or pavement, etc. by hand tools (sledgehammer, etc.) or power tools such as pneumatic drills or hammers;
 - (ii) Working on or around high speed emery or other grinding wheels unprotected by guards;
 - (iii) Cutting or chipping terra cotta ducts, tile, etc.;
 - (iv) Working under motor vehicles requiring hammering;
 - (v) Cleaning operations using compressed air, steam, or sand blast;
 - (vi) Acetylene welding or similar operations where sparks are thrown off;
 - (vii) Using powder actuated stud drivers;
 - (viii) Tree pruning or cutting underbrush;
 - (ix) Handling battery cells and solutions, such as taking battery readings with a hydrometer and thermometer;
 - (x) Removing or rearranging strand or open wire; and
 - (xi) Performing lead sleeve wiping and while soldering.
- (3) Tent heaters. Flame-type heaters may not be used within ground tents or on platforms within aerial tents unless:
 - (i) The tent covers are constructed of fire resistant materials, and
 - (ii) Adequate ventilation is provided to maintain safe oxygen levels and avoid harmful buildup of combustion products and combustible gases.

- (4) Torches. Torches may be used on aerial splicing platforms or in buckets enclosed by tents provided the tent material is constructed of fire resistant material and the torch is turned off when not in actual use. Aerial tents shall be adequately ventilated while the torch is in operation.
- (5) Portable power equipment. Nominal 120V, or less, portable generators used for providing power at work locations do not require grounding if the output circuit is completely isolated from the frame of the unit.
- (6) Vehicle-mounted utility generators. Vehicle-mounted utility generators used for providing nominal 240V AC or less for powering portable tools and equipment need not be grounded to earth if all of the following conditions are met:
- (i) One side of the voltage source is solidly strapped to the metallic structure of the vehicle;
 - (ii) Grounding-type outlets are used, with a "grounding" conductor between the outlet grounding terminal and the side of the voltage source that is strapped to the vehicle;
 - (iii) All metallic encased tools and equipment that are powered from this system are equipped with three-wire cords and grounding-type attachment plugs, except as designated in paragraph (i)(7) of this section.
- (7) Portable lights, tools, and appliances. Portable lights, tools, and appliances having noncurrent-carrying external metal housing may be used with power equipment described in paragraph (i)(5) of this section without an equipment grounding conductor. When operated from commercial power such metal parts of these devices shall be grounded, unless these tools or appliances are protected by a system of double insulation, or its equivalent. Where such a system is employed, the equipment shall be distinctively marked to indicate double insulation.
- (8) Soldering devices. Grounding shall be omitted when using soldering irons, guns or wire-wrap tools on telecommunications circuits.

- (9) Lead work. The wiping of lead joints using melted solder, gas fueled torches, soldering irons or other appropriate heating devices, and the soldering of wires or other electrical connections do not constitute the welding, cutting and brazing described in Subpart Q of this part. When operated from commercial power the metal housing of electric solder pots shall be grounded. Electric solder pots may be used with the power equipment described in paragraph (i)(5) of this section without a grounding conductor. The employer shall ensure that wiping gloves or cloths and eye protection are used in lead wiping operations. A drip pan to catch hot lead drippings shall also be provided and used.

437-002-0316 (6)(b) Chain saw usage

- (A) Chain saws shall be inspected prior to use and kept in good repair at all times. Saws with defective parts shall not be used.*
- (B) Chain saw engines shall be shut off while being fueled.*
- (C) Chain saws shall be equipped with an automatic throttle control which will return the engine to idling speed upon release of the throttle.*
- (D) All employees using chain saws shall wear flexible ballistic nylon pads or other equivalent protection sewn or otherwise fastened to the trousers, which will protect the legs from the thigh to below the knee, except when working from an aerial lift device.*
- (E) Chain saws shall not be brought into a bucket or work platform of an aerial lift device. Saws shall be carried on the outside of the aerial lift device. Chain saws shall be started and used only outside of the aerial lift device.*

1910.268 (j) Vehicle-mounted material handling devices and other mechanical equipment.

(1) General.

- (i) The employer shall ensure that visual inspections are made of the equipment by a competent person each day the equipment is to be used to ascertain that it is in good condition.
- (ii) The employer shall ensure that tests shall be made at the beginning of each shift by a competent person to insure the vehicle brakes and operating systems are in proper working condition.

(2) Scrapers, loaders, dozers, graders and tractors.

- (i) All rubber-tired, self-propelled scrapers, rubber-tired front end loaders, rubber-tired dozers, agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders, with or without attachments, that are used in telecommunications work shall have rollover protective structures that meet the requirements of Subpart W of Part 1926 of this Title.
 - (ii) Eye protection shall be provided and the employer shall ensure that it is used by employees when working in areas where flying material is generated.
- (3) Vehicle-mounted elevating and rotating work platforms. These devices shall not be operated with any conductive part of the equipment closer to exposed energized power lines than the clearances set forth in Table R-2 of this section.

Note: Elevating and rotating work platforms shall comply with the requirements of OAR 437, Division 2/F, 1910.67.

- (4) Derrick trucks and similar equipment.
- (i) This equipment shall not be operated with any conductive part of the equipment closer to exposed energized power lines than the clearances set forth in Table R-2 of this section.
 - (ii) When derricks are used to handle poles near energized power conductors, these operations shall comply with the requirements contained in paragraphs (b)(7) and (n)(11) of this section.
 - (iii) Moving parts of equipment and machinery carried on or mounted on telecommunications line trucks shall be guarded. This may be done with barricades as specified in paragraph (d)(2) of this section.
 - (iv) Derricks and the operation of derricks shall comply with the following requirements:
 - (A) Manufacturer's specifications, load ratings and instructions for derrick operation shall be strictly observed.
 - (B) Rated load capacities and instructions related to derrick operation shall be conspicuously posted on a permanent weather-resistant plate or decal in a location on the derrick that is plainly visible to the derrick operator.

- (C) Prior to derrick operation the parking brake must be set and the stabilizers extended if the vehicle is so equipped. When the vehicle is situated on a grade, at least two wheels must be chocked on the downgrade side.
- (D) Only persons trained in the operation of the derrick shall be permitted to operate the derrick.

437-002-0316 (7) Training

The employer shall see that employees who operate derricks and cranes are properly trained as required in OAR 437, Division 2/N, OAR 437-002-0229(2), Crane Operator Training Requirements.

- 1910.268 (j)(4)(iv)(E) Hand signals to derrick operators shall be those prescribed by ANSI B30.6-1969, "Safety Code for Derricks", which is incorporated by reference as specified in 1910.6.
- (F) The employer shall ensure that the derrick and its associated equipment are inspected by a competent person at intervals set by the manufacturer but in no case less than once per year. Records shall be maintained including the dates of inspections, and necessary repairs made, if corrective action was required.
 - (G) Modifications or additions to the derrick and its associated equipment that alter its capacity or affect its safe operation shall be made only with written certification from the manufacturer, or other equivalent entity, such as a nationally recognized testing laboratory, that the modification results in the equipment being safe for its intended use. Such changes shall require the changing and posting of revised capacity and instruction decals or plates. These new ratings or limitations shall be as provided by the manufacturer or other equivalent entity.
 - (H) Wire rope used with derricks shall be of improved plow steel or equivalent. Wire rope safety factors shall be in accordance with American National Standards Institute B30.6-1969.
 - (I) Wire rope shall be taken out of service, or the defective portion removed, when any of the following conditions exist:
 - (1) The rope strength has been significantly reduced due to corrosion, pitting, or excessive heat, or
 - (2) The thickness of the outer wires of the rope has been reduced to two-thirds or less of the original thickness, or

- (3) There are more than six broken wires in any one rope lay, or
- (4) There is excessive permanent distortion caused by kinking, crushing, or severe twisting of the rope.

(k) Materials handling and storage.

- (1) Poles. When working with poles in piles or stacks, work shall be performed from the ends of the poles as much as possible, and precautions shall be taken for the safety of employees at the other end of the pole. During pole hauling operations, all loads shall be secured to prevent displacement. Lights, reflectors and/or flags shall be displayed on the end and sides of the load as necessary. The requirements for installation, removal, or other handling of poles in pole lines are prescribed in paragraph (n) of this section which pertains to overhead lines. In the case of hoisting machinery equipped with a positive stop loadholding device, it shall be permissible for the operator to leave his position at the controls (while a load is suspended) for the sole purpose of assisting in positioning the load prior to landing it. Prior to unloading steel, poles, crossarms, and similar material, the load shall be thoroughly examined to ascertain that the load has not shifted, that binders or stakes have not broken, and that the load is not otherwise hazardous to employees.
- (2) Cable reels. Cable reels in storage shall be checked or otherwise restrained when there is a possibility that they might accidentally roll from position.

(l) Cable fault locating and testing.

- (1) Employees involved in using high voltages to locate trouble or test cables shall be instructed in the precautions necessary for their own safety and the safety of other employees.
- (2) Before the voltage is applied, cable conductors shall be isolated to the extent practicable. Employees shall be warned, by such techniques as briefing and tagging at all affected locations, to stay clear while the voltage is applied.

(m) Grounding for employee protection – pole lines.

- (1) Power conductors. Electric power conductors and equipment shall be considered as energized unless the employee can visually determine that they are bonded to one of the grounds listed in paragraph (m)(4) of this section.

- (2) Nonworking open wire. Nonworking open wire communications lines shall be bonded to one of the grounds listed in paragraph (m)(4) of this section.
- (3) Vertical power conduit, power ground wires and street light fixtures.
- (i) Metal power conduit on joint use poles, exposed vertical power ground wires, and street light fixtures which are below communications attachments or less than 20 inches above these attachments, shall be considered energized and shall be tested for voltage unless the employee can visually determine that they are bonded to the communications suspension strand or cable sheath.
 - (ii) If no hazardous voltage is shown by the voltage test, a temporary bond shall be placed between such street light fixture, exposed vertical power grounding conductor, or metallic power conduit and the communications cable strand. Temporary bonds used for this purpose shall have sufficient conductivity to carry at least 500 amperes for a period of one second without fusing.
- (4) Suitable protective grounding. Acceptable grounds for protective grounding are as follows:
- (i) A vertical ground wire which has been tested, found safe, and is connected to a power system multigrounded neutral or the grounded neutral of a power secondary system where there are at least three services connected;
 - (ii) Communications cable sheath or shield and its supporting strand where the sheath or shield is:
 - (A) Bonded to an underground or buried cable which is connected to a central office ground, or
 - (B) Bonded to an underground metallic piping system, or
 - (C) Bonded to a power system multigrounded neutral or grounded neutral of a power secondary system which has at least three services connected;
 - (iii) Guys which are bonded to the grounds specified in paragraphs (m)(4)(i) and (ii) of this section and which have continuity uninterrupted by an insulator; and

- (iv) If all of the preceding grounds are not available, arrays of driven ground rods where the resultant resistance to ground will be low enough to eliminate danger to personnel or permit prompt operation of protective devices.
- (5) Attaching and removing temporary bonds. When attaching grounds (bonds), the first attachment shall be made to the protective ground. When removing bonds, the connection to the line or equipment shall be removed first. Insulating gloves shall be worn during these operations.
- (6) Temporary grounding of suspension strand.
 - (i) The suspension strand shall be grounded to the existing grounds listed in paragraph (m)(4) of this section when being placed on jointly used poles or during thunderstorm activity.
 - (ii) Where power crossings are encountered on nonjoint lines, the strand shall be bonded to an existing ground listed in paragraph (m)(4) of this section as close as possible to the crossing. This bonding is not required where crossings are made on a common crossing pole unless there is an upward change in grade at the pole.
 - (iii) Where roller-type bonds are used, they shall be restrained so as to avoid stressing the electrical connections.
 - (iv) Bonds between the suspension strand and the existing ground shall be at least No. 6AWG copper.
 - (v) Temporary bonds shall be left in place until the strand has been tensioned, dead-ended, and permanently grounded.
 - (vi) The requirements of paragraphs (m)(6)(i) through (m)(6)(v) of this section do not apply to the installation of insulated strand.
- (7) Antenna work – radio transmitting stations 3-30 MHZ.
 - (i) Prior to grounding a radio transmitting station antenna, the employer shall insure that the rigger in charge:
 - (A) Prepares a danger tag signed with his signature,
 - (B) Requests the transmitting technician to shutdown the transmitter and to ground the antenna with its grounding switch,
 - (C) Is notified by the transmitting technician that the transmitter has been shutdown, and

- (D) Tags the antenna ground switch personally in the presence of the transmitting technician after the antenna has been grounded by the transmitting technician.
 - (ii) Power shall not be applied to the antenna, nor shall the grounding switch be opened under any circumstances while the tag is affixed.
 - (iii)
 - (A) Where no grounding switches are provided, grounding sticks shall be used, one on each side of line, and tags shall be placed on the grounding sticks, antenna switch, or plate power switch in a conspicuous place.
 - (B) When necessary to further reduce excessive radio frequency pickup, ground sticks or short circuits shall be placed directly on the transmission lines near the transmitter in addition to the regular grounding switches.
 - (C) In other cases, the antenna lines may be disconnected from ground and the transmitter to reduce pickup at the point in the field.
 - (iv) All radio frequency line wires shall be tested for pickup with an insulated probe before they are handled either with bare hands or with metal tools.
 - (v) The employer shall insure that the transmitting technician warn the riggers about adjacent lines which are, or may become energized.
 - (vi) The employer shall insure that when antenna work has been completed, the rigger in charge of the job returns to the transmitter, notifies the transmitting technician in charge that work has been completed, and personally removes the tag from the antenna ground switch.
- (n) Overhead lines.
- (1) Handling suspension strand.
 - (i) The employer shall insure that when handling cable suspension strand which is being installed on poles carrying exposed energized power conductors, employees shall wear insulating gloves and shall avoid body contact with the strand until after it has been tensioned, dead-ended and permanently grounded.
 - (ii) The strand shall be restrained against upward movement during installation:

- (A) On joint-use poles, where there is an upward change in grade at the pole, and
 - (B) On non-joint-use poles, where the line crosses under energized power conductors.
- (2) Need for testing wood poles. Unless temporary guys or braces are attached, the following poles shall be tested in accordance with paragraph (n)(3) of this section and determined to be safe before employees are permitted to climb them:
- (i) Dead-end poles, except properly braced or guyed "Y" or "T" cable junction poles,
 - (ii) Straight line poles which are not storm guyed and where adjacent span lengths exceed 165 feet,
 - (iii) Poles at which there is a downward change in grade and which are not guyed or braced corner poles or cable junction poles,
 - (iv) Poles which support only telephone drop wire, and
 - (v) Poles which carry less than ten communication line wires. On joint use poles, one power line wire shall be considered as two communication wires for purposes of this paragraph (n)(2)(v).
- (3) Methods for testing wood poles. One of the following methods or an equivalent method shall be used for testing wood poles:
- (i) Rap the pole sharply with a hammer weighing about 3 pounds, starting near the ground line and continuing upwards circumferentially around the pole to a height of approximately 6 feet. The hammer will produce a clear sound and rebound sharply when striking sound wood. Decay pockets will be indicated by a dull sound and/or a less pronounced hammer rebound. When decay pockets are indicated, the pole shall be considered unsafe. Also, prod the pole as near the ground line as possible using a pole prod or a screwdriver with a blade at least 5 inches long. If substantial decay is encountered, the pole shall be considered unsafe.
 - (ii) Apply a horizontal force to the pole and attempt to rock it back and forth in a direction perpendicular to the line. Caution shall be exercised to avoid causing power wires to swing together. The force may be applied either by pushing with a pike pole or pulling with a rope. If the pole cracks during the test, it shall be considered unsafe.

- (4) Unsafe poles or structures. Poles or structures determined to be unsafe by test or observation may not be climbed until made safe by guying, bracing or other adequate means. Poles determined to be unsafe to climb shall, until they are made safe, be tagged in a conspicuous place to alert and warn all employees of the unsafe condition.
- (5) Test requirements for cable suspension strand.
- (i) Before attaching a splicing platform to a cable suspension strand, the strand shall be tested and determined to have strength sufficient to support the weight of the platform and the employee. Where the strand crosses above power wires or railroad tracks it may not be tested but shall be inspected in accordance with paragraph (n)(6) of this section.
- (ii) The following method or an equivalent method shall be used for testing the strength of the strand: A rope, at least three-eighths inch in diameter, shall be thrown over the strand. On joint lines, the rope shall be passed over the strand using tree pruner handles or a wire raising tool. If two employees are present, both shall grip the double rope and slowly transfer their entire weight to the rope and attempt to raise themselves off the ground. If only one employee is present, one end of the rope which has been passed over the strand shall be tied to the bumper of the truck, or other equally secure anchorage. The employee then shall grasp the other end of the rope and attempt to raise himself off the ground.
- (6) Inspection of strand. Where strand passes over electric power wires or railroad tracks, it shall be inspected from an elevated working position at each pole supporting the span in question. The strand may not be used to support any splicing platform, scaffold or cable car, if any of the following conditions exist:
- (i) Corrosion so that no galvanizing can be detected,
- (ii) One or more wires of the strand are broken,
- (iii) Worn spots, or
- (iv) Burn marks such as those caused by contact with electric power wires.
- (7) Outside work platforms. Unless adequate railings are provided, safety straps and body belts shall be used while working on elevated work platforms such as aerial splicing platforms, pole platforms, ladder platforms and terminal balconies.

- (8) Other elevated locations. Safety straps and body belts shall be worn when working at elevated positions on poles, towers or similar structures, which do not have adequately guarded work areas.
- (9) Installing and removing wire and cable. Before installing or removing wire or cable, the pole or structure shall be guyed, braced, or otherwise supported, as necessary, to prevent failure of the pole or structure.
- (10) Avoiding contact with energized power conductors or equipment. When cranes, derricks, or other mechanized equipment are used for setting, moving, or removing poles, all necessary precautions shall be taken to avoid contact with energized power conductors or equipment.
- (11) Handling poles near energized power conductors.
- (i) Joint use poles may not be set, moved, or removed where the nominal voltage of open electrical power conductors exceeds 34.5kV phase to phase (20kV to ground).
- (ii) Poles that are to be placed, moved or removed during heavy rains, sleet or wet snow in joint lines carrying more than 8.7kV phase to phase voltage (5kV to ground) shall be guarded or otherwise prevented from direct contact with overhead energized power conductors.
- (iii)
- (A) In joint lines where the power voltage is greater than 750 volts but less than 34.5kV phase to phase (20 kV to ground), wet poles being placed, moved or removed shall be insulated with either a rubber insulating blanket, a fiberglass box guide, or equivalent protective equipment.
- (B) In joint lines where the power voltage is greater than 8.7 kV phase to phase (5kV to ground) but less than 34.5kV phase to phase (20 kV to ground), dry poles being placed, moved, or removed shall be insulated with either a rubber insulating blanket, a fiberglass box guide, or equivalent protective equipment.
- (C) Where wet or dry poles are being removed, insulation of the pole is not required if the pole is cut off 2 feet or more below the lowest power wire and also cut off near the ground line.

Note: Federal rules 1910.268(n)(11)(iv) and (v) were NOT adopted by OR-OSHA. Instead, OAR 437-002-0316(8)(a) and (b) apply:

437-002-0316 (8) Handling poles near energized power conductors

- (a) *Insulating gloves shall be worn when handling the pole with either hands or tools, when there exists a possibility that the pole may contact a power conductor. Where the voltage to the ground of the power conductor exceeds 15kV to ground, Class II gloves (as defined in ASTM D1048-88a) shall be used. For voltages not exceeding 15kV to ground, insulating gloves shall have a breakdown voltage of at least 17kV.*
- (b) *The guard or insulating material used to protect the pole shall meet the appropriate 3 minute proof test voltage requirements contained in ASTM D 1048-88a.*

1910.268 (n)(11)(vi) after there exists a possibility of contact between the pole or the vehicle-mounted equipment used to handle the pole, and an energized power conductor, the following precautions shall be observed:

- (A) When on the vehicle which carries the derrick, avoid all contact with the ground, with persons standing on the ground, and with all grounded objects such as guys, tree limbs, or metal sign posts. To the extent feasible, remain on the vehicle as long as the possibility of contact exists.
- (B) When it is necessary to leave the vehicle, step onto an insulating blanket and break all contact with the vehicle before stepping off the blanket and onto the ground. As a last resort, if a blanket is not available, the employee may jump cleanly from the vehicle.
- (C) When it is necessary to enter the vehicle, first step onto an insulating blanket and break all contact with the ground, grounded objects and other persons before touching the truck or derrick.
- (12) Working position on poles. Climbing and working are prohibited above the level of the lowest electric power conductor on the pole (exclusive of vertical runs and street light wiring), except:
- (i) Where communications facilities are attached above the electric power conductors, and a rigid fixed barrier is installed between the electric power facility and the communications facility, or
- (ii) Where the electric power conductors are cabled secondary service drops carrying less than 300 volts to ground and are attached 40 inches or more below the communications conductors or cables.

(13) Metal tapes and ropes.

- (i) Metal measuring tapes, metal measuring ropes, or tapes containing conductive strands may not be used when working near exposed energized parts.
 - (ii) Where it is necessary to measure clearances from energized parts, only non-conductive devices shall be used.
- (o) Underground lines. The provisions of this paragraph apply to the guarding of manholes and street openings, and to the ventilation and testing for gas in manholes and unvented vaults, where telecommunications field work is performed on or with underground lines.
 - (1) Guarding manholes and street openings.
 - (i) When covers of manholes or vaults are removed, the opening shall be promptly guarded by a railing, temporary cover, or other suitable temporary barrier which is appropriate to prevent an accidental fall through the opening and to protect employees working in the manhole from foreign objects entering the manhole.
 - (ii) While work is being performed in the manhole, a person with basic first aid training shall be immediately available to render assistance if there is cause for believing that a safety hazard exists, and if the requirements contained in paragraphs (d)(1) and (o)(1)(i) of this section do not adequately protect the employee(s). Examples of manhole work site hazards which shall be considered to constitute a safety hazard include, but are not limited to:
 - (A) Manhole work sites where safety hazards are created by traffic patterns that cannot be corrected by provisions of paragraph (d)(1) of this section.
 - (B) Manhole work sites that are subject to unusual water hazards that cannot be abated by conventional means.
 - (C) Manhole work sites that are occupied jointly with power utilities as described in paragraph (o)(3) of this section.
 - (2) Requirements prior to entering manholes and unvented vaults.
 - (i) Before an employee enters a manhole, the following steps shall be taken:
 - (A) The internal atmosphere shall be tested for combustible gas and, except when continuous forced ventilation is provided, the atmosphere shall also be tested for oxygen deficiency.

- (B) When unsafe conditions are detected by testing or other means, the work area shall be ventilated and otherwise made safe before entry.
- (ii) An adequate continuous supply of air shall be provided while work is performed in manholes under any of the following conditions:
 - (A) Where combustible or explosive gas vapors have been initially detected and subsequently reduced to a safe level by ventilation,
 - (B) Where organic solvents are used in the work procedure,
 - (C) Where open flame torches are used in the work procedure,
 - (D) Where the manhole is located in that portion of a public right of way open to vehicular traffic and/or exposed to a seepage of gas or gases, or
 - (E) Where a toxic gas or oxygen deficiency is found.
- (iii)
 - (A) The requirements of paragraphs (o)(2)(i) and (ii) of this section do not apply to work in central office cable vaults that are adequately ventilated.
 - (B) The requirements of paragraphs (o)(2)(i) and (ii) of this section apply to work in unvented vaults.
- (3) Joint power and telecommunication manholes. While work is being performed in a manhole occupied jointly by an electric utility and a telecommunication utility, an employee with basic first aid training shall be available in the immediate vicinity to render emergency assistance as may be required. The employee whose presence is required in the immediate vicinity for the purposes of rendering emergency assistance is not to be precluded from occasionally entering a manhole to provide assistance other than in an emergency. The requirement of this paragraph (o)(3) does not preclude a qualified employee, working alone, from entering for brief periods of time, a manhole where energized cables or equipment are in service, for the purpose of inspection, housekeeping, taking readings, or similar work if such work can be performed safely.
- (4) Ladders. Ladders shall be used to enter and exit manholes exceeding 4 feet in depth.

- (5) Flames. When open flames are used in manholes, the following precautions shall be taken to protect against the accumulation of combustible gas:
- (i) A test for combustible gas shall be made immediately before using the open flame device, and at least once per hour while using the device; and
 - (ii) a fuel tank (e.g., acetylene) may not be in the manhole unless in actual use.
- (p) Microwave transmission.
- (1) Eye protection. Employers shall insure that employees do not look into an open waveguide which is connected to an energized source of microwave radiation.
 - (2) Hazardous area. Accessible areas associated with microwave communication systems where the electromagnetic radiation level exceeds the radiation protection guide given in 1910.97 shall be posted as described in that section. The lower half of the warning symbol shall include the following:

Radiation in this area may exceed hazard limitations and special precautions are required. Obtain specific instruction before entering.
 - (3) Protective measures. When an employee works in an area where the electro-magnetic radiation exceeds the radiation protection guide, the employer shall institute measures that insure that the employee's exposure is not greater than that permitted by the radiation guide. Such measures shall include, but not be limited to those of an administrative or engineering nature or those involving personal protective equipment.

437-002-0316 (9) Fiber optic/lightwave transmission

- (a) Only qualified employees shall install, service, maintain or use lightwave test equipment.*
- (b) Employees shall avoid eye exposure to emissions from unterminated energized optical connectors.*
- (c) Employees shall not look into vacant regenerator slots with an optical instrument.*
- (d) Employees should not examine or look into broken, severed, or disconnected fiber optic cables.*

- (e) Lightwave emissions may only be viewed with an indirect image converting device.*
- (f) Microscopes, magnifying glasses and eye loupes shall not be used to examine energized fiber optic cables.*
- (g) Lightguide terminals must be tagged "Do Not Energize" when splicing technicians are restoring a damaged system.*

437-002-0316 (10) Reserved

1910.268 (q) Tree trimming electrical hazards

(1) General.

- (i) Employees engaged in pruning, trimming, removing, or clearing trees from lines shall be required to consider all overhead and underground electrical power conductors to be energized with potentially fatal voltages, never to be touched (contacted) either directly or indirectly.
- (ii) Employees engaged in line-clearing operations shall be instructed that:
 - (A) A direct contact is made when any part of the body touches or contacts an energized conductor, or other energized electrical fixture or apparatus.
 - (B) An indirect contact is made when any part of the body touches any object in contact with an energized electrical conductor, or other energized fixture or apparatus.
 - (C) An indirect contact can be made through conductive tools, tree branches, trucks, equipment, or other objects, or as a result of communications wires, cables, fences, or guy wires being accidentally energized.
 - (D) Electric shock will occur when an employee, by either direct or indirect contact with an energized conductor, energized tree limb, tool, equipment, or other object, provides a path for the flow of electricity to a grounded object or to the ground itself. Simultaneous contact with two energized conductors will also cause electric shock which may result in serious or fatal injury.

(iii) Before any work is performed in proximity to energized conductors, the system operator/owner of the energized conductors shall be contacted to ascertain if he knows of any hazards associated with the conductors which may not be readily apparent. This rule does not apply when operations are performed by or on behalf of, the system operator/owner.

(2) Working in proximity to electrical hazards.

- (i) Employers shall ensure that a close inspection is made by the employee and by the foremen or supervisor in charge before climbing, entering, or working around any tree, to determine whether an electrical power conductor passes through the tree, or passes within reaching distance of an employee working in the tree. If any of these conditions exist either directly or indirectly, an electrical hazard shall be considered to exist unless the system operator/owner has caused the hazard to be removed by deenergizing the lines, or installing protective equipment.
- (ii) Only qualified employees or trainees, familiar with the special techniques and hazards involved in line clearance, shall be permitted to perform the work if it is found that an electrical hazard exists.
- (iii) During all tree working operations aloft where an electrical hazard of more than 750V exists, there shall be a second employee or trainee qualified in line clearance tree trimming within normal voice communication.
- (iv) Where tree work is performed by employees qualified in line-clearance tree trimming and trainees qualified in line-clearance tree trimming, the clearances from energized conductors given in Table R-3 shall apply.

Table R 3 - Minimum Working Distances from Energized Conductors for Line-Clearance Tree Trimmers and Line-Clearance Tree-Trimner Trainees

Voltage range (phase to phase) (kilovolts)	Minimum working distance
2.1 to 15.0	2 ft. 0 in.
15.1 to 35.0	2 ft. 4 in.
35.1 to 46.0	2 ft. 6 in.
46.1 to 72.5	3 ft. 0 in.
72.6 to 121.0	3 ft. 4 in.
138.0 to 145.0	3 ft. 6 in.
161.0 to 169.0	3 ft. 8 in.
230.0 to 242.0	5 ft. 0 in.
345.0 to 362.0	7 ft. 0 in.
500.0 to 552.0	11 ft. 0 in.
700.0 to 765.0	15 ft. 0 in.

- (v) Branches hanging on an energized conductor may only be removed using appropriately insulated equipment.
 - (vi) Rubber footwear, including lineman's overshoes, shall not be considered as providing any measure of safety from electrical hazards.
 - (vii) Ladders, platforms, and aerial devices, including insulated aerial devices, may not be brought in contact with an electrical conductor. Reliance shall not be placed on their dielectric capabilities.
 - (viii) When an aerial lift device contacts an electrical conductor, the truck supporting the aerial lift device shall be considered as energized.
- (3) Storm work and emergency conditions.
- (i) Since storm work and emergency conditions create special hazards, only authorized representatives of the electric utility system operator/owner and not telecommunication workers may perform tree work in these situations where energized electrical power conductors are involved.
 - (ii) When an emergency condition develops due to tree operations, work shall be suspended and the system operator/owner shall be notified immediately.
- (r) Buried facilities – Communications lines and power lines in the same trench.
(Reserved)
- (s) Definitions.
- (1) **Aerial lifts.** Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to job sites above ground:

- (i) Extensible boom platforms,
 - (ii) Aerial ladders,
 - (iii) Articulating boom platforms,
 - (iv) Vertical towers,
 - (v) A combination of any of the above defined in ANSI A92.2-1969, which is incorporated by reference as specified in 1910.6. These devices are made of metal, wood, fiberglass reinforced plastic (FRP), or other material; are powered or manually operated; and are deemed to be aerial lifts whether or not they are capable of rotating about a substantially vertical axis.
- (2) **Aerial splicing platform.** This consists of a platform, approximately 3 feet X 4 feet, used to perform aerial cable work. It is furnished with fiber or synthetic ropes for supporting the platform from aerial strand, detachable guy ropes for anchoring it, and a device for raising and lowering it with a handline.
- (3) **Aerial tent.** A small tent usually constructed of vinyl coated canvas which is usually supported by light metal or plastic tubing. It is designed to protect employees in inclement weather while working on ladders, aerial splicing platforms, or aerial devices.
- (4) **Alive or live (energized).** Electrically connected to a source of potential difference, or electrically charged so as to have a potential significantly different from that of the earth in the vicinity. The term "live" is sometimes used in the place of the term "current-carrying," where the intent is clear, to avoid repetition of the longer term.
- (5) **Barricade.** A physical obstruction such as tapes, cones, or "A" frame type wood and/or metal structure intended to warn and limit access to a work area.
- (6) **Barrier.** A physical obstruction which is intended to prevent contact with energized lines or equipment, or to prevent unauthorized access to work area.
- (7) **Bond.** An electrical connection from one conductive element to another for the purpose of minimizing potential differences or providing suitable conductivity for fault current or for mitigation of leakage current and electrolytic action.

- (8) **Cable.** A conductor with insulation, or a stranded conductor with or without insulation and other coverings (single-conductor cable), or a combination of conductors insulated from one another (multiple-conductor cable).
- (9) **Cable sheath.** A protective covering applied to cables.
- Note:** A cable sheath may consist of multiple layers of which one or more is conductive.
- (10) **Circuit.** A conductor or system of conductors through which an electric current is intended to flow.
- (11) **Communication lines.** The conductors and their supporting or containing structures for telephone, telegraph, railroad signal, data, clock, fire, police-alarm, community television antenna and other systems which are used for public or private signal or communication service, and which operate at potentials not exceeding 400 volts to ground or 750 volts between any two points of the circuit, and the transmitted power of which does not exceed 150 watts. When communications lines operate at less than 150 volts to ground, no limit is placed on the capacity of the system. Specifically designed communications cables may include communication circuits not complying with the preceding limitations, where such circuits are also used incidentally to supply power to communication equipment.
- (12) **Conductor.** A material, usually in the form of a wire, cable, or bus bar, suitable for carrying an electric current.
- (13) **Effectively grounded.** Intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the build-up of voltages which may result in undue hazard to connected equipment or to persons.
- (14) **Equipment.** A general term which includes materials, fittings, devices, appliances, fixtures, apparatus, and similar items used as part of, or in connection with, a supply or communications installation.
- (15) **Ground (reference).** That conductive body, usually earth, to which an electric potential is referenced.
- (16) **Ground (as a noun).** A conductive connection, whether intentional or accidental, by which an electric circuit or equipment is connected to reference ground.
- (17) **Ground (as a verb).** The connecting or establishment of a connection, whether by intention or accident, of an electric circuit or equipment to reference ground.

- (18) **Ground tent.** A small tent usually constructed of vinyl coated canvas supported by a metal or plastic frame. Its purpose is to protect employees from inclement weather while working at buried cable pedestal sites or similar locations.
- (19) **Grounded conductor.** A system or circuit conductor which is intentionally grounded.
- (20) **Grounded systems.** A system of conductors in which at least one conductor or point (usually the middle wire, or the neutral point of transformer or generator windings) is intentionally grounded, either solidly or through a current-limiting device (not a current-interrupting device).
- (21) **Grounding electrode conductor.** (Grounding conductor). A conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode.
- (22) **Insulated.** Separated from other conducting surfaces by a dielectric substance (including air space) offering a high resistance to the passage of current.
- Note:** When any object is said to be insulated, it is understood to be insulated in suitable manner for the conditions to which it is subjected. Otherwise, it is, within the purpose of these rules, uninsulated. Insulating coverings of conductors in one means of making the conductor insulated.
- (23) **Insulation (as applied to cable).** That which is relied upon to insulate the conductor from other conductors or conducting parts or from ground.
- (24) **Joint use.** The sharing of a common facility, such as a manhole, trench or pole, by two or more different kinds of utilities (e.g., power and telecommunications).
- (25) **Ladder platform.** A device designed to facilitate working aloft from an extension ladder. A typical device consists of a platform (approximately 9 inches X 18 inches) hinged to a welded pipe frame. The rear edge of the platform and the bottom cross-member of the frame are equipped with latches to lock the platform to ladder rungs.
- (26) **Ladder seat.** A removable seat used to facilitate work at an elevated position on rolling ladders in telecommunication centers.
- (27) **Manhole.** A subsurface enclosure which personnel may enter and which is used for the purpose of installing, operating, and maintaining submersible equipment and/or cable.

- (28) **Manhole platform.** A platform consisting of separate planks which are laid across steel platform supports. The ends of the supports are engaged in the manhole cable racks.
- (29) **Microwave transmission.** The act of communicating or signaling utilizing a frequency between 1 GHz (gigahertz) and 300 GHz inclusively.
- (30) **Nominal voltage.** The nominal voltage of a system or circuit is the value assigned to a system or circuit of a given voltage class for the purpose of convenient designation. The actual voltage may vary above or below this value.
- (31) **Pole balcony or seat.** A balcony or seat used as a support for workmen at pole-mounted equipment or terminal boxes. A typical device consists of a bolted assembly of steel details and a wooden platform. Steel braces run from the pole to the underside of the balcony. A guardrail (approximately 30 inches high) may be provided.
- (32) **Pole platform.** A platform intended for use by a workman in splicing and maintenance operations in an elevated position adjacent to a pole. It consists of a platform equipped at one end with a hinged chain binder for securing the platform to a pole. A brace from the pole to the underside of the platform is also provided.
- (33) **Qualified employee.** Any worker who by reason of his training and experience has demonstrated his ability to safely perform his duties.
- (34) **Qualified line-clearance tree trimmer.** A tree worker who through related training and on-the-job experience is familiar with the special techniques and hazards involved in line clearance.
- (35) **Qualified line-clearance tree-trimmer trainee.** Any worker regularly assigned to a line-clearance tree-trimming crew and undergoing on-the-job training who, in the course of such training, has demonstrated his ability to perform his duties safely at his level of training.
- (36) **System operator/owner.** The person or organization that operates or controls the electrical conductors involved.
- (37) **Telecommunications center.** An installation of communication equipment under the exclusive control of an organization providing telecommunications service, that is located outdoors or in a vault, chamber, or a building space used primarily for such installations.

Note: Telecommunication centers are facilities established, equipped and arranged in accordance with engineered plans for the purpose of providing telecommunications service. They may be located on premises owned or leased by the organization providing telecommunication service, or on the premises owned or leased by others. This definition includes switch rooms (whether electromechanical, electronic, or computer controlled), terminal rooms, power rooms, repeater rooms, transmitter and receiver rooms, switchboard operating rooms, cable vaults, and miscellaneous communications equipment rooms. Simulation rooms of telecommunication centers for training or developmental purposes are also included.

- (38) **Telecommunications derricks.** Rotating or nonrotating derrick structures permanently mounted on vehicles for the purpose of lifting, lowering, or positioning hardware and materials used in telecommunications work.
- (39) **Telecommunication line truck.** A truck used to transport men, tools, and material, and to serve as a traveling workshop for telecommunication installation and maintenance work. It is sometimes equipped with a boom and auxiliary equipment for setting poles, digging holes, and elevating material or men.
- (40) **Telecommunication service.** The furnishing of a capability to signal or communicate at a distance by means such as telephone, telegraph, police and fire alarm, community antenna television, or similar system, using wire, conventional cable, coaxial cable, wave guides, microwave transmission, or other similar means.
- (41) **Unvented vault.** An enclosed vault in which the only openings are access openings.
- (42) **Vault.** An enclosure above or below ground which personnel may enter, and which is used for the purpose of installing, operating, and/or maintaining equipment and/or cable which need not be of submersible design.
- (43) **Vented vault.** An enclosure as described in paragraph (s)(42) of this section, with provision for air changes using exhaust flue stack(s) and low level air intake(s), operating on differentials of pressure and temperature providing for air flow.
- (44) **Voltage of an effectively grounded circuit.** The voltage between any conductor and ground unless otherwise indicated.

(45) Voltage of a circuit not effectively grounded. The voltage between any two conductors. If one circuit is directly connected to and supplied from another circuit of higher voltage (as in the case of an autotransformer), both are considered as of the higher voltage, unless the circuit of lower voltage is effectively grounded, in which case its voltage is not determined by the circuit of higher voltage. Direct connection implies electric connection as distinguished from connection merely through electromagnetic or electrostatic induction.

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OR-OSHA Admin. Order 4-1999, f. 4/30/99, ef. 4/30/99.

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OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.

OR-OSHA Admin. Order 2-2017, f. 5/16/17, ef. 11/1/17.

OR-OSHA Admin. Order 6-2017, f. 9/5/17, ef. 11/1/17.

437-002-0316 (11) Additional definitions in Oregon

Clearance –

- (a) For working on, means the certification by the property authority that a specified line or piece of equipment is deenergized; that the proper precautionary measures have been taken and that the line or equipment is being turned over to the workers.*
- (b) From hazard, means adequate separation or protection by the use of protective devices to prevent accidental contact by persons or objects on approach to a point of danger.*

Climbing space – The vertical space reserved along the side of poles or structures to permit ready access for linemen to equipment and conductors located on poles or structures.

Communication plant – The conductors and their associated equipment required to provide public or private signals or communicative service.

Competent or qualified person – A person who is familiar with the construction of, or operation of, such lines and/or equipment that concerns his or her position and who is fully aware of the hazards connected therewith or one who has passed a journeyman’s examination for the particular branch of the trades with which he or she may be connected.

Emergency – *When an unusual condition exists that endangers life and/or property.*

Foreman or Person-in-charge – *That person directly in charge of workers doing the work regardless of title.*

Grounding – *The act of placing shorts and grounds on conductors and equipment for the purpose of protecting workers from dangerous voltages while working on such lines or equipment.*

Guard or guarded – *Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, platforms, or warning signs or devices which are suitable to remove the possibility of dangerous contact on approach by other persons or objects to a point of danger.*

Manlift equipment – *Such types of portable truck-mounted equipment as mechanical, electric or hydraulic ladders and boom-mounted buckets or cages.*

Protection from hazardous voltage – *The isolation from or deenergizing of equipment to prevent accidental contact by persons or objects on approach to point of danger.*

Protective devices – *Those devices such as rubber gloves, rubber blankets, line hose, rubber hoods or other insulating devices, which are specially designed for the protection of workers.*

Public highway – *Land, road, street, boulevard, and every way or place in the state open as matter of right to public vehicular travel, both inside and outside the limit of cities and towns.*

Sheath – *As applied to sharp tools, a case that effectively covers the tool.*

Voltage communications – *Voltage used for electronic communications equipment to which workers or protective equipment may be subjected.*

(a) *High – Over 600 volts to ground – RMS AC or DC or over 1,000 volts RMS across bare parts.*

(b) *Medium high – 151 to 600 volts to ground – RMS AC or DC or 301 to 1,000 volts RMS AC across any bare parts.*

Voltage electric supply – *The maximum effective line voltage to which the workers or protective equipment may be subjected.*

(a) *Low – Includes voltages from 100 to 600 volts.*

(b) High – Those voltages in excess of 600 volts.

Stat. Auth.: ORS 654.025(2) and 656.726(3).

Stats. Implemented: ORS 654.001 to 654.295.

Hist: OR-OSHA Admin. Order 11-1993, f. 8/4/93, ef. 10/1/93.

OR-OSHA Admin. Order 1-1996, f. 2/16/96, ef. 2/16/96.

OR-OSHA Admin. Order 2-1999, f. 4/30/99, ef. 4/30/99.

OR-OSHA Admin. Order 3-1999, f. 4/30/99, ef. 4/30/99.

Note: In Oregon, the Electric Power Generation, Transmission, and Distribution standard is located in Division 2/RR.

1910.272 Grain Handling Facilities

(a) Scope. This section contains requirements for the control of grain dust fires and explosions, and certain other safety hazards associated with grain handling facilities. It applies in addition to all other relevant provisions of Part 1910 (or Part 1917 at marine terminals).

Note to paragraph (a): For grain-handling facilities in the marine-terminal industry only, 29 CFR 1910.262 is to be enforced consistent with the interpretations in OSHA Compliance Directive 02-00-066, which is available on OSHA's web page at www.osha.gov.

(b) Application.

(1) Paragraphs (a) through (n) of this section apply to grain elevators, feed mills, flour mills, rice mills, dust pelletizing plants, dry corn mills, soybean flaking operations, and the dry grinding operations of soycake.

(2) Paragraphs (o), (p), and (q) of this section apply only to grain elevators.

(c) Definitions.

Choked leg means a condition of material buildup in the bucket elevator that results in the stoppage of material flow and bucket movement. A bucket elevator is not considered choked that has the up-leg partially or fully loaded and has the boot and discharge cleared allowing bucket movement.

Flat storage structure means a grain storage building or structure that will not empty completely by gravity, has an unrestricted ground level opening for entry, and must be entered to reclaim the residual grain using powered equipment or manual means.

Fugitive grain dust means combustible dust particles, emitted from the stock handling system, of such size as will pass through a U.S. Standard 40 mesh sieve (425 microns or less).

Grain elevator means a facility engaged in the receipt, handling, storage, and shipment of bulk raw agricultural commodities such as corn, wheat, oats, barley, sunflower seeds, and soybeans.

Hot work means work involving electric or gas welding, cutting, brazing, or similar flame producing operations.

Inside bucket elevator means a bucket elevator that has the boot and more than 20 percent of the total leg height (above grade or ground level) inside the grain elevator structure. Bucket elevators with leg casings that are inside (and pass through the roofs) of rail or truck dump sheds with the remainder of the leg outside of the grain elevator structure, are not considered inside bucket elevators.

Jogging means repeated starting and stopping of drive motors in an attempt to clear choked legs.

Lagging means a covering on drive pulleys used to increase the coefficient of friction between the pulley and the belt.

Permit means the written certification by the employer authorizing employees to perform identified work operations subject to specified precautions.

(d) Emergency action plan. The employer shall develop and implement an emergency action plan meeting the requirements contained in OAR 437-002-0042.

(e) Training.

(1) The employer shall provide training to employees at least annually and when changes in job assignment will expose them to new hazards. Current employees, and new employees prior to starting work, shall be trained in at least the following:

(i) General safety precautions associated with the facility, including recognition and preventive measures for the hazards related to dust accumulations and common ignition sources such as smoking; and,

(ii) Specific procedures and safety practices applicable to their job tasks including but not limited to, cleaning procedures for grinding equipment clearing procedures for choked legs, housekeeping procedures, hot work procedures, preventive maintenance procedures and lockout/tagout procedures.

(2) Employees assigned special tasks, such as bin entry and handling of flammable or toxic substances, shall be provided training to perform these tasks safely.

Note to paragraph (e)(2): Training for an employee who enters grain storage structures includes training about engulfment and mechanical hazards and how to avoid them.

(f) Hot work permit.

- (1) The employer shall issue a permit for all hot work, with the following exceptions:
 - (i) Where the employer or the employer's representative (who would otherwise authorize the permit) is present while the hot work is being performed;
 - (ii) In welding shops authorized by the employer;
 - (iii) In hot work areas authorized by the employer which are located outside of the grain handling structure.
 - (2) The permit shall certify that the requirements contained in 1910.253(a) have been implemented prior to beginning the hot work operations. The permit shall be kept on file until completion of the hot work operations.
- (g) Entry into grain storage structures. This paragraph applies to employee entry into bins, silos, tanks, and other grain storage structures. Exception: Entry through unrestricted ground level openings into flat storage structures in which there are no toxicity, flammability, oxygen-deficiency, or other atmospheric hazards is covered by paragraph (h) of this section. For the purposes of this paragraph (g), the term "grain" includes raw and processed grain and grain products in facilities within the scope of paragraph (b)(1) of this section.
- (1) The following actions shall be taken before employees enter bins, silos, or tanks:
 - (i) The employer shall issue a permit for entering bins, silos, or tanks unless the employer or the employer's representative (who would otherwise authorize the permit) is present during the entire operation. The permit shall certify that the precautions contained in this paragraph (1910.272(g)) have been implemented prior to employees entering bins, silos or tanks. The permit shall be kept on file until completion of the entry operations.
 - (ii) All mechanical, electrical, hydraulic, and pneumatic equipment which presents a danger to employees inside grain storage structures shall be deenergized and shall be disconnected, locked-out and tagged, blocked-off, or otherwise prevented from operating by other equally effective means or methods.

- (iii) The atmosphere within a bin, silo, or tank shall be tested for the presence of combustible gases, vapors, and toxic agents when the employer has reason to believe they may be present. Additionally, the atmosphere within a bin, silo, or tank shall be tested for oxygen content unless there is continuous natural air movement or continuous forced-air ventilation before and during the period employees are inside. If the oxygen level is less than 19.5%, or if combustible gas or vapor is detected in excess of 10% of the lower flammable limit, or if toxic agents are present in excess of the ceiling values listed in Subdivision Z of 29 CFR Part 1910, or if toxic agents are present in concentrations that will cause health effects which prevent employees from effecting self-rescue or communication to obtain assistance, the following provisions apply.
- (A) Ventilation shall be provided until the unsafe condition or conditions are eliminated, and the ventilation shall be continued as long as there is a possibility of recurrence of the unsafe condition while the bin, silo, or tank is occupied by employees.
- (B) If toxicity or oxygen deficiency cannot be eliminated by ventilation, employees entering the bin, silo, or tank shall wear an appropriate respirator. Respirator use shall be in accordance with the requirements of 1910.134.
- (iv) "Walking down grain" and similar practices where an employee walks on grain to make it flow within or out from a grain storage structure, or where an employee is on moving grain, are prohibited.
- (2) Whenever an employee enters a grain storage structure from a level at or above the level of the stored grain or grain products, or whenever an employee walks or stands on or in stored grain of a depth which poses an engulfment hazard, the employer shall equip the employee with a body harness with lifeline, or a boatswain's chair that meets the requirements of subpart D of this part. The lifeline shall be so positioned, and of sufficient length, to prevent the employee from sinking further than waist-deep in the grain. Exception: Where the employer can demonstrate that the protection required by this paragraph is not feasible or creates a greater hazard, the employer shall provide an alternative means of protection which is demonstrated to prevent the employee from sinking further than waist-deep in the grain.

Note to paragraph (g)(2): When the employee is standing or walking on a surface which the employer demonstrates is free from engulfment hazards, the lifeline or alternative means may be disconnected or removed.

- (3) An observer, equipped to provide assistance, shall be stationed outside the bin, silo, or tank being entered by an employee. Communications (visual, voice, or signal line) shall be maintained between the observer and employee entering the bin, silo, or tank.
 - (4) The employer shall provide equipment for rescue operations which is specifically suited for the bin, silo, or tank being entered.
 - (5) The employee acting as observer shall be trained in rescue procedures, including notification methods for obtaining additional assistance.
 - (6) Employees shall not enter bins, silos, or tanks underneath a bridging condition, or where a buildup of grain products on the sides could fall and bury them.
- (h) Entry into flat storage structures. For the purposes of this paragraph (h), the term "grain" means raw and processed grain and grain products in facilities within the scope of paragraph (b)(1) of this section.
- (1) Each employee who walks or stands on or in stored grain, where the depth of the grain poses an engulfment hazard, shall be equipped with a lifeline or alternative means which the employer demonstrates will prevent the employee from sinking further than waist-deep into the grain.
Note to paragraph (h)(1): When the employee is standing or walking on a surface which the employer demonstrates is free from engulfment hazards, the lifeline or alternative means may be disconnected or removed.
- (2)
- (i) Whenever an employee walks or stands on or in stored grain or grain products of a depth which poses an engulfment hazard, all equipment which presents a danger to that employee (such as an auger or other grain transport equipment) shall be deenergized, and shall be disconnected, locked-out and tagged, blocked-off, or otherwise prevented from operating by other equally effective means or methods.
 - (ii) "Walking down grain" and similar practices where an employee walks on grain to make it flow within or out from a grain storage structure, or where an employee is on moving grain, are prohibited.
- (3) No employee shall be permitted to be either underneath a bridging condition, or in any other location where an accumulation of grain on the sides or elsewhere could fall and engulf that employee.

(i) Contractors.

- (1) The employer shall inform contractors performing work at the grain handling facility of known potential fire and explosion hazards related to the contractor's work and work area. The employer shall also inform contractors of the applicable safety rules of the facility.
 - (2) The employer shall explain the applicable provisions of the emergency action plan to contractors.
- (j) Housekeeping.
- (1) The employer shall develop and implement a written housekeeping program that establishes the frequency and method(s) determined best to reduce accumulations of fugitive grain dust on ledges, floors, equipment, and other exposed surfaces.
 - (2) In addition, the housekeeping program for grain elevators shall address fugitive grain dust accumulations at priority housekeeping areas.
 - (i) Priority housekeeping areas shall include at least the following:
 - (A) Floor areas within 35 feet (10.7 m) of inside bucket elevators;
 - (B) Floors of enclosed areas containing grinding equipment;
 - (C) Floors of enclosed areas containing grain dryers located inside the facility.
 - (ii) The employer shall immediately remove any fugitive grain dust accumulations whenever they exceed 1/8 inch (.32 cm) at priority housekeeping areas, pursuant to the housekeeping program, or shall demonstrate and assure, through the development and implementation of the housekeeping program, that equivalent protection is provided.
 - (3) The use of compressed air to blow dust from ledges, walls, and other areas shall only be permitted when all machinery that presents an ignition source in the area is shut down, and all other known potential ignition sources in the area are removed or controlled.
 - (4) Grain and product spills shall not be considered fugitive grain dust accumulations. However, the housekeeping program shall address the procedures for removing such spills from the work area.
- (k) Grate openings. Receiving-pit feed openings, such as truck or railcar receiving-pits, shall be covered by grates. The width of openings in the grates shall be a maximum of 2 1/2 inches (6.35 cm).
- (l) Filter collectors.

- (1) All fabric dust filter collectors which are a part of a pneumatic dust collection system shall be equipped with a monitoring device that will indicate a pressure drop across the surface of the filter.
- (2) Filter collectors installed after March 30, 1988 shall be:
 - (i) Located outside the facility; or
 - (ii) Located in an area inside the facility protected by an explosion suppression system; or
 - (iii) Located in an area inside the facility that is separated from other areas of the facility by construction having at least a one hour fire-resistance rating, and which is adjacent to an exterior wall and vented to the outside. The vent and ductwork shall be designed to resist rupture due to deflagration.
- (m) Preventive maintenance.
 - (1) The employer shall implement preventive maintenance procedures consisting of:
 - (i) Regularly scheduled inspections of at least the mechanical and safety control equipment associated with dryers, grain stream processing equipment, dust collection equipment including filter collectors, and bucket elevators;
 - (ii) Lubrication and other appropriate maintenance in accordance with manufacturers' recommendations, or as determined necessary by prior operating records.
 - (2) The employer shall promptly correct dust collection systems which are malfunctioning or which are operating below designed efficiency. Additionally, the employer shall promptly correct, or remove from service, overheated bearings and slipping or misaligned belts associated with inside bucket elevators.
 - (3) A certification record shall be maintained of each inspection, performed in accordance with this paragraph (m), containing the date of the inspection, the name of the person who performed the inspection and the serial number, or other identifier, of the equipment specified in paragraph (m)(1)(i) of this section that was inspected.

- (4) The employer shall implement procedures for the use of tags and locks which will prevent the inadvertent application of energy or motion to equipment being repaired, serviced, or adjusted, which could result in employee injury. Such locks and tags shall be removed in accordance with established procedures only by the employee installing them or, if unavailable, by his or her supervisor.
- (n) Grain stream processing equipment. The employer shall equip grain stream processing equipment (such as hammer mills, grinders, and pulverizers) with an effective means of removing ferrous material from the incoming grain stream.
- (o) Emergency escape.
- (1) The employer shall provide at least two means of emergency escape from galleries (bin decks).
- (2) The employer shall provide at least one means of emergency escape in tunnels of existing grain elevators. Tunnels in grain elevators constructed after the effective date of this standard shall be provided with at least two means of emergency escape.
- (p) Continuous-flow bulk raw grain dryers.
- (1) All direct-heat grain dryers shall be equipped with automatic controls that:
- (i) Will shut-off the fuel supply in case of power or flame failure or interruption of air movement through the exhaust fan; and,
- (ii) Will stop the grain from being fed into the dryer if excessive temperature occurs in the exhaust of the drying section.
- (2) Direct-heat grain dryers installed after March 30, 1988 shall be:
- (i) Located outside the grain elevator; or
- (ii) Located in an area inside the grain elevator protected by a fire or explosion suppression system; or
- (iii) Located in an area inside the grain elevator which is separated from other areas of the facility by construction having at least a 1 hour fire-resistance rating.
- (q) Inside bucket elevators.
- (1) Bucket elevators shall not be jogged to free a choked leg.

- (2) All belts and lagging purchased after March 30, 1988 shall be conductive. Such belts shall have a surface electrical resistance not to exceed 300 megohms.
- (3) All bucket elevators shall be equipped with a means of access to the head pulley section to allow inspection of the head pulley, lagging, belt, and discharge throat of the elevator head. The boot section shall also be provided with a means of access for clean out of the boot and for inspection of the boot, pulley, and belt.
- (4) The employer shall:
 - (i) Mount bearings externally to the leg casing; or,
 - (ii) Provide vibration monitoring, temperature monitoring, or other means to monitor the condition of those bearings mounted inside or partially-inside the leg casing.
- (5) The employer shall equip bucket elevators with a motion detection device which will shutdown the bucket elevator when the belt speed is reduced by no more than 20% of the normal operating speed.
- (6) The employer shall:
 - (i) Equip bucket elevators with a belt alignment monitoring device which will initiate an alarm to employees when the belt is not tracking properly; or,
 - (ii) Provide a means to keep the belt tracking properly, such as a system that provides constant alignment adjustment of belts.
- (7) Paragraphs (q)(5) and (q)(6) of this section do not apply to grain elevators having a permanent storage capacity of less than one million bushels, provided that daily visual inspection is made of bucket movement and tracking of the belt.
- (8) Paragraphs (q)(4), (q)(5), and (q)(6) of this section do not apply to the following:
 - (i) Bucket elevators which are equipped with an operational fire and explosion suppression system capable of protecting at least the head and boot section of the bucket elevator; or,
 - (ii) Bucket elevators which are equipped with pneumatic or other dust control systems or methods that keep the dust concentration inside the bucket elevator at least 25% below the lower explosive limit at all times during operations.

[52 FR 49625, Dec. 31, 1987, as amended at 53 FR 17696, May 18, 1988; 54 FR 24334, June 7, 1989; 55 FR 25094, June 20, 1990; 61 FR 9242, Mar. 7, 1996; 61 FR 9584, Mar. 8, 1996; 67 FR 67965, Nov. 7, 2002; 76 FR 80740, Dec. 27, 2011.]

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: APD Admin. Order 10-1988, f. 7/7/88, ef. 7/7/88.

OR-OSHA Admin. Order 23-1990, f. 9/28/90, ef. 12/1/90.

OR-OSHA Admin. Order 3-1996, f. 7/22/96, ef. 7/22/96.

OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.

OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.

Note: The following appendices to 1910.272 serve as nonmandatory guidelines to assist employers and employees in complying with the requirements of this section, as well as to provide other helpful information.

No additional burdens are imposed through these appendices.

Appendix A to 1910.272 – Grain Handling Facilities

Examples presented in this appendix may not be the only means of achieving the performance goals in the standard.

1. Scope and Application

The provisions of this standard apply in addition to any other applicable requirements of this Part 1910 (or Part 1917 at marine terminals). The standard contains requirements for new and existing grain handling facilities. The standard does not apply to seed plants which handle and prepare seeds for planting of future crops, nor to on-farm storage or feed lots.

2. Emergency Action Plan

The standard requires the employer to develop and implement an emergency action plan. The emergency action plan (OAR 437-002-0042) covers those designated actions employers and employees are to take to ensure employee safety from fire and other emergencies. The plan specifies certain minimum elements which are to be addressed. These elements include the establishment of an employee alarm system, the development of evacuation procedures, and training employees in those actions they are to take during an emergency.

The standard does not specify a particular method for notifying employees of an emergency. Public announcement systems, air horns, steam whistles, a standard fire alarm system, or other types of employee alarm may be used. However, employers should be aware that employees in a grain facility may have difficulty hearing an emergency alarm, or distinguishing an emergency alarm from other audible signals at the facility, or both. Therefore, it is important that the type of employee alarm used be distinguishable and distinct.

The use of floor plans or workplace maps which clearly show the emergency escape routes should be included in the emergency action plan; color coding will aid employees in determining their route assignments. The employer should designate a safe area, outside the facility, where employees can congregate after evacuation, and implement procedures to account for all employees after emergency evacuation has been completed.

It is also recommended that employers seek the assistance of the local fire department for the purpose of preplanning for emergencies. Preplanning is encouraged to facilitate coordination and cooperation between facility personnel and those who may be called upon for assistance during an emergency. It is important for emergency service units to be aware of the usual work locations of employees at the facility.

3. Training

It is important that employees be trained in the recognition and prevention of hazards associated with grain facilities, especially those hazards associated with their own work tasks. Employees should understand the factors which are necessary to produce a fire or explosion, i.e., fuel (such as grain dust), oxygen, ignition source, and (in the case of explosions) confinement. Employees should be made aware that any efforts they make to keep these factors from occurring simultaneously will be an important step in reducing the potential for fires and explosions.

The standard provides flexibility for the employer to design a training program which fulfills the needs of a facility. The type, amount, and frequency of training will need to reflect the tasks that employees are expected to perform. Although training is to be provided to employees at least annually, it is recommended that safety meetings or discussions and drills be conducted at more frequent intervals.

The training program should include those topics applicable to the particular facility, as well as topics such as: Hot work procedures; lock-out/tag-out procedures; bin entry procedures; bin cleaning procedures; grain dust explosions; fire prevention; procedures for handling "hot grain"; housekeeping procedures, including methods and frequency of dust removal; pesticide and fumigant usage; proper use and maintenance of personal protective equipment; and, preventive maintenance. The types of work clothing should also be considered in the program at least to caution against using polyester clothing that easily melts and increases the severity of burns, as compared to wool or fire retardant cotton.

In implementing the training program, it is recommended that the employer utilize films, slide-tape presentations, pamphlets, and other information which can be obtained from such sources as the Grain Elevator and Processing Society, the Cooperative Extension Service of the U.S. Department of Agriculture, Kansas State University's Extension Grain Science and Industry, and other state agriculture schools, industry associations, union organizations, and insurance groups.

4. Hot Work Permit

The implementation of a permit system for hot work is intended to assure that employers maintain control over operations involving hot work and to assure that employees are aware of and utilize appropriate safeguards when conducting these activities.

Precautions for hot work operations are specified in 29 CFR 1910.252(a), and include such safeguards as relocating the hot work operation to a safe location if possible, relocating or covering combustible material in the vicinity, providing fire extinguishers,

and provisions for establishing a fire watch. Permits are not required for hot work operations conducted in the presence of the employer or the employer's authorized representative who would otherwise issue the permit, or in an employer authorized welding shop or when work is conducted outside and away from the facility.

It should be noted that the permit is not a record, but is an authorization of the employer certifying that certain safety precautions have been implemented prior to the beginning of work operations.

5. Entry Into Bins, Silos, and Tanks

In order to assure that employers maintain control over employee entry into bins, silos, and tanks, OSHA is requiring that the employer issue a permit for entry into bins, silos, and tanks unless the employer (or the employer's representative who would otherwise authorize the permit) is present at the entry and during the entire operation.

Employees should have a thorough understanding of the hazards associated with entry into bins, silos, and tanks. Employees are not to be permitted to enter these spaces from the bottom when grain or other agricultural products are hung up or sticking to the sides which might fall and injure or kill an employee. Employees should be made aware that the atmosphere in bins, silos, and tanks can be oxygen deficient or toxic. Employees should be trained in the proper methods of testing the atmosphere, as well as in the appropriate procedures to be taken if the atmosphere is found to be oxygen deficient or toxic. When a fumigant has been recently applied in these areas and entry must be made, aeration fans should be running continuously to assure a safe atmosphere for the inside. Periodic monitoring of toxic levels should be done by direct reading instruments to measure the levels, and, if there is an increase in these readings, appropriate actions should be promptly taken.

Employees have been buried and suffocated in grain or other agricultural products because they sank into the material. Therefore, it is suggested that employees not be permitted to walk or stand on the grain or other grain product where the depth is greater than waist high. In this regard, employees must use a full body harness or boatswain's chair with a lifeline when entering from the top. A winch system with mechanical advantage (either powered or manual) would allow better control of the employee than just using a hand held hoist line, and such a system would allow the observer to remove the employee easily without having to enter the space.

It is important that employees be trained in the proper selection and use of any personal protective equipment which is to be worn. Equally important is the training of employees in the planned emergency rescue procedures. Employers should carefully read 1910.134(e)(3) and assure that their procedures follow these requirements. The employee acting as observer is to be equipped to provide assistance and is to know procedures for obtaining additional assistance. The observer should not enter a space until adequate assistance is available. It is recommended that an employee trained in CPR be readily available to provide assistance to those employees entering bins, silos, or tanks.

6. Contractors

These provisions of the standard are intended to ensure that outside contractors are cognizant of the hazards associated with grain handling facilities, particularly in relation to the work they are to perform for the employer. Also, in the event of an emergency, contractors should be able to take appropriate action as a part of the overall facility emergency action plan. Contractors should also be aware of the employer's permit systems. Contractors should develop specified procedures for performing hot work and for entry into bins, silos, and tanks and these activities should be coordinated with the employer. Contractors are responsible for informing their own employees.

This coordination will help to ensure that employers know what work is being performed at the facility by contractors; where it is being performed; and, that it is being performed in a manner that will not endanger employees.

7. Housekeeping

The housekeeping program is to be designed to keep dust accumulations and emissions under control inside grain facilities. The housekeeping program, which is to be written, is to specify the frequency and method(s) used to best reduce dust accumulations.

Ship, barge, and rail loadout and receiving areas which are located outside the facility need not be addressed in the housekeeping program. Additionally, truck dumps which are open on two or more sides need not be addressed by the housekeeping program. Other truck dumps should be addressed in the housekeeping program to provide for regular cleaning during periods of receiving grain or agricultural products. The housekeeping program should provide coverage for all workspaces in the facility and include walls, beams, etc., especially in relation to the extent that dust could accumulate.

Dust Accumulations

Almost all facilities will require some level of manual housekeeping. Manual housekeeping methods, such as vacuuming or sweeping with soft bristle brooms, should be used which will minimize the possibility of layered dust being suspended in the air when it is being removed.

The housekeeping program should include a contingency plan to respond to situations where dust accumulates rapidly due to a failure of a dust enclosure hood, an unexpected breakdown of the dust control system, a dust-tight connection inadvertently knocked open, etc.

The housekeeping program should also specify the manner of handling spills. Grain spills are not considered to be dust accumulations.

A fully enclosed horizontal belt conveying system where the return belt is inside the enclosure should have inspection access such as sliding panels or doors to permit checking of equipment, checking for dust accumulations and facilitate cleaning if needed.

Dust Emissions

Employers should analyze the entire stock handling system to determine the location of dust emissions and effective methods to control or to eliminate them. The employer should make sure that holes in spouting, casings of bucket elevators, pneumatic conveying pipes, screw augers, or drag conveyor casings, are patched or otherwise properly repaired to prevent leakage. Minimizing free falls of grain or grain products by using choke feeding techniques, and utilization of dust-tight enclosures at transfer points, can be effective in reducing dust emissions.

Each housekeeping program should specify the schedules and control measures which will be used to control dust emitted from the stock handling system. The housekeeping program should address the schedules to be used for cleaning dust accumulations from motors, critical bearings and other potential ignition sources in the working areas. Also, the areas around bucket elevator legs, milling machinery and similar equipment should be given priority in the cleaning schedule. The method of disposal of the dust which is swept or vacuumed should also be planned.

Dust may accumulate in somewhat inaccessible areas, such as those areas where ladders or scaffolds might be necessary to reach them. The employer may want to consider the use of compressed air and long lances to blow down these areas frequently. The employer may also want to consider the periodic use of water and hoses to wash down these areas. If these methods are used, they are to be specified in the housekeeping program along with the appropriate safety precautions, including the use of personal protective equipment such as eyewear and dust respirators.

Several methods have been effective in controlling dust emissions. A frequently used method of controlling dust emissions is a pneumatic dust collection system. However, the installation of a poorly designed pneumatic dust collection system has fostered a false sense of security and has often led to an inappropriate reduction in manual housekeeping. Therefore, it is imperative that the system be designed properly and installed by a competent contractor. Those employers who have a pneumatic dust control system that is not working according to expectations should request the engineering design firm, or the manufacturer of the filter and related equipment, to conduct an evaluation of the system to determine the corrections necessary for proper operation of the system. If the design firm or manufacturer of the equipment is not known, employers should contact their trade association for recommendations of competent designers of pneumatic dust control systems who could provide assistance.

When installing a new or upgraded pneumatic control system, the employer should insist on an acceptance test period of 30 to 45 days of operation to ensure that the system is operating as intended and designed. The employer should also obtain maintenance, testing, and inspection information from the manufacturer to ensure that the system will continue to operate as designed.

Aspiration of the leg, as part of a pneumatic dust collection system, is another effective method of controlling dust emissions. Aspiration of the leg consists of a flow of air across the entire boot, which entrains the liberated dust and carries it up the up-leg to take-off points. With proper aspiration, dust concentrations in the leg can be lowered below the lower explosive limit. Where a prototype leg installation has been instrumented and shown to be effective in keeping the dust level 25% below the lower explosive limit during normal operations for the various products handled, then other legs of similar size, capacity and products being handled which have the same design criteria for the air aspiration would be acceptable to OSHA, provided the prototype test report is available on site.

Another method of controlling dust emissions is enclosing the conveying system, pressurizing the general work area, and providing a lower pressure inside the enclosed conveying system. Although this method is effective in controlling dust emissions from the conveying system, adequate access to the inside of the enclosure is necessary to facilitate frequent removal of dust accumulations. This is also necessary for those systems called "self-cleaning."

The use of edible oil sprayed on or into a moving stream of grain is another method which has been used to control dust emissions. Tests performed using this method have shown that the oil treatment can reduce dust emissions. Repeated handling of the grain may necessitate additional oil treatment to prevent liberation of dust. However, before using this method, operators of grain handling facilities should be aware that the Food and Drug Administration must approve the specific oil treatment used on products for food or feed.

As a part of the housekeeping program, grain elevators are required to address accumulations of dust at priority areas using the action level. The standard specifies a maximum accumulation of 1/8 inch dust, measurable by a ruler or other measuring device, anywhere within a priority area as the upper limit at which time employers must initiate action to remove the accumulations using designated means or methods. Any accumulation in excess of this amount and where no action has been initiated to implement cleaning would constitute a violation of the standard, unless the employer can demonstrate equivalent protection. Employers should make every effort to minimize dust accumulations on exposed surfaces since dust is the fuel for a fire or explosion, and it is recognized that a 1/8 inch dust accumulation is more than enough to fuel such occurrences.

8. Filter Collectors

Proper sizing of filter collectors for the pneumatic dust control system they serve is very important for the overall effectiveness of the system. The air to cloth ratio of the system should be in accordance with the manufacturer's recommendations. If higher ratios are used, they can result in more maintenance on the filter, shorter bag or sock life, increased differential pressure resulting in higher energy costs, and an increase in operational problems.

A photohelic gauge, magnehelic gauge, or manometer, may be used to indicate the pressure rise across the inlet and outlet of the filter. When the pressure exceeds the design value for the filter, the air volume will start to drop, and maintenance will be required. Any of these three monitoring devices is acceptable as meeting paragraph (I)(1) of the standard.

The employer should establish a level or target reading on the instrument which is consistent with the manufacturer's recommendations that will indicate when the filter should be serviced. This target reading on the instrument and the accompanying procedures should be in the preventive maintenance program. These efforts would minimize the blinding of the filter and the subsequent failure of the pneumatic dust control system.

There are other instruments that the employer may want to consider using to monitor the operation of the filter. One instrument is a zero motion switch for detecting a failure of motion by the rotary discharge valve on the hopper. If the rotary discharge valve stops turning, the dust released by the bag or sock will accumulate in the filter hopper until the filter becomes clogged. Another instrument is a level indicator which is installed in the hopper of the filter to detect the buildup of dust that would otherwise cause the filter hopper to be plugged. The installation of these instruments should be in accordance with manufacturer's recommendations.

All of these monitoring devices and instruments are to be capable of being read at an accessible location and checked as frequently as specified in the preventive maintenance program.

Filter collectors on portable vacuum cleaners, and those used where fans are not part of the system, are not covered by requirements of paragraph (I) of the standard.

9. Preventive Maintenance

The control of dust and the control of ignition sources are the most effective means for reducing explosion hazards. Preventive maintenance is related to ignition sources in the same manner as housekeeping is related to dust control and should be treated as a major function in a facility. Equipment such as critical bearings, belts, buckets, pulleys, and milling machinery are potential ignition sources, and periodic inspection and lubrication of such equipment through a scheduled preventive maintenance program is an effective method for keeping equipment functioning properly and safely. The use of vibration detection methods, heat sensitive tape or other heat detection methods that can be seen by the inspector or maintenance person will allow for a quick, accurate, and consistent evaluation of bearings and will help in the implementation of the program.

The standard does not require a specific frequency for preventive maintenance. The employer is permitted flexibility in determining the appropriate interval for maintenance provided that the effectiveness of the maintenance program can be demonstrated. Scheduling of preventive maintenance should be based on manufacturer's recommendations for effective operation, as well as from the employer's previous experience with the equipment. However, the employer's schedule for preventive maintenance should be frequent enough to allow for both prompt identification and correction of any problems concerning the failure or malfunction of the mechanical and safety control equipment associated with bucket elevators, dryers, filter collectors and magnets. The pressure-drop monitoring device for a filter collector, and the condition of the lagging on the head pulley, are examples of items that require regularly scheduled inspections. A system of identifying the date, the equipment inspected and the maintenance performed, if any, will assist employers in continually refining their preventive maintenance schedules and identifying equipment problem areas. Open work orders where repair work or replacement is to be done at a designated future date as scheduled, would be an indication of an effective preventive maintenance program.

It is imperative that the prearranged schedule of maintenance be adhered to regardless of other facility constraints. The employer should give priority to the maintenance or repair work associated with safety control equipment, such as that on dryers, magnets, alarm and shut-down systems on bucket elevators, bearings on bucket elevators, and the filter collectors in the dust control system. Benefits of a strict preventive maintenance program can be a reduction of unplanned downtime, improved equipment performance, planned use of resources, more efficient operations, and, most importantly, safer operations.

The standard also requires the employer to develop and implement procedures consisting of locking out and tagging equipment to prevent the inadvertent application of energy or motion to equipment being repaired, serviced, or adjusted, which could result in employee injury. All employees who have responsibility for repairing or servicing equipment, as well as those who operate the equipment, are to be familiar with the employer's lock and tag procedures. A lock is to be used as the positive means to prevent operation of the disconnected equipment. Tags are to be used to inform employees why equipment is locked out. Tags are to meet requirements in 1910.145(f). Locks and tags may only be removed by employees that placed them, or by their supervisor, to ensure the safety of the operation.

10. Grain Stream Processing Equipment

The standard requires an effective means of removing ferrous material from grain streams so that such material does not enter equipment such as hammer mills, grinders and pulverizers. Large foreign objects, such as stones, should have been removed at the receiving pit. Introduction of foreign objects and ferrous material into such equipment can produce sparks which can create an explosion hazard. Acceptable means for removal of ferrous materials include the use of permanent or electromagnets. Means used to separate foreign objects and ferrous material should be cleaned regularly and kept in good repair as part of the preventive maintenance program in order to maximize their effectiveness.

11. Emergency Escape

The standard specifies that at least two means of escape must be provided from galleries (bin decks). Means of emergency escape may include any available means of egress (consisting of three components, exit access, exit, and exit discharge as defined in 1910.35), the use of controlled descent devices with landing velocities not to exceed 15 ft/sec., or emergency escape ladders from galleries. Importantly, the means of emergency escape are to be addressed in the facility emergency action plan. Employees are to know the location of the nearest means of emergency escape and the action they must take during an emergency.

12. Dryers

Liquefied petroleum gas fired dryers should have the vaporizers installed at least 10 feet from the dryer. The gas piping system should be protected from mechanical damage. The employer should establish procedures for locating and repairing leaks when there is a strong odor of gas or other signs of a leak.

13. Inside Bucket Elevators

Hazards associated with inside bucket elevator legs are the source of many grain elevator fires and explosions. Therefore, to mitigate these hazards, the standard requires the implementation of special safety precautions and procedures, as well as the installation of safety control devices. The standard provides for a phase-in period for many of the requirements to provide the employer time for planning the implementation of the requirements. Additionally, for elevators with a permanent storage capacity of less than one million bushels, daily visual inspection of belt alignment and bucket movement can be substituted for alignment monitoring devices and motion detection devices.

The standard requires that belts (purchased after the effective date of the standard) have surface electrical resistance not to exceed 300 megohms. Test methods available regarding electrical resistance of belts are: The American Society for Testing and Materials D257-76, "Standard Test Methods for D-C Resistance or Conductance of Insulating Materials"; and, the International Standards Organization's #284, "Conveyor Belts – Electrical Conductivity – Specification and Method of Test." When an employer has a written certification from the manufacturer that a belt has been tested using one of the above test methods, and meets the 300 megohm criteria, the belt is acceptable as meeting this standard. When using conductive belts, the employer should make certain that the head pulley and shaft are grounded through the drive motor ground or by some other equally effective means. When V-type belts are used to transmit power to the head pulley assembly from the motor drive shaft, it will be necessary to provide electrical continuity from the head pulley assembly to ground, e.g., motor grounds.

Employers should also consider purchasing new belts that are flame retardant or fire resistive. A flame resistance test for belts is contained in 30 CFR 18.65.

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: APD Admin. Order 10-1988, f. 7/7/88, ef. 7/7/88.

OR-OSHA Admin. Order 23-1990, f. 9/28/90, ef. 12/1/90.

OR-OSHA Admin. Order 3-1996, f. 7/22/96, ef. 7/22/96.

Appendix B to 1910.272 – Grain Handling Facilities

National Consensus Standards

The following table contains a cross-reference listing of current national consensus standards which provide information that may be of assistance to grain handling operations. Employers who comply with provisions in these national consensus standards that provide equal or greater protection than those in 1910.272 will be considered in compliance with the corresponding requirements in 1910.272.

National Consensus

Subject	Standards
Grain elevators and facilities handling bulk raw agricultural commodities	ANSI/NFPA 61B
Feed mills	ANSI/NFPA 61C
Facilities handling agricultural commodities for human consumption	ANSI/NFPA 61D
Pneumatic conveying systems for agricultural commodities	ANSI/NFPA 66
Guide for explosion venting	ANSI/NFPA 68
Explosion prevention systems	ANSI/NFPA 69
Dust removal and exhaust systems	ANSI/NFPA 91

Stat. Auth.: ORS 654.025(2) and 656.726(4).
 Stats. Implemented: ORS 654.001 through 654.295.
 Hist: APD Admin. Order 10-1988, f. 7/7/88, ef. 7/7/88.

Appendix C to 1910.272 – Grain Handling Facilities

References for Further Information

The following references provide information which can be helpful in understanding the requirements contained in various provisions of the standard, as well as provide other helpful information.

1. Accident Prevention Manual for Industrial Operations; National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.
2. Practical Guide to Elevator Design; National Grain and Feed Association, P.O. Box 28328, Washington, DC 20005.
3. Dust Control for Grain Elevators; National Grain and Feed Association, P.O. Box 28328, Washington, DC 20005.
4. Prevention of Grain Elevator and Mill Explosions; National Academy of Sciences, Washington, DC. (Available from National Technical Information Service, Springfield, Virginia 22151.)
5. Standard for the Prevention of Fires and Explosions in Grain Elevators and Facilities Handling Bulk Raw Agricultural Commodities, NFPA 61B; National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.
6. Standard for the Prevention of Fire and Dust Explosions in Feed Mills, NFPA 61C; National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.
7. Standard for the Prevention of Fire and Dust Explosions in the Milling of Agricultural Commodities for Human Consumption, NFPA 61D, National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.
8. Standard for Pneumatic Conveying Systems for Handling Feed, Flour, Grain and Other Agricultural Dusts, NFPA 66; National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.
9. Guide for Explosion Venting, NFPA 68; National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.
10. Standard on Explosion Prevention Systems, NFPA 69; National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.
11. Safety-Operations Plans; U.S. Department of Agriculture, Washington, DC 20250.

12. Inplant Fire Prevention Control Programs; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
13. Guidelines for Terminal Elevators; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
14. Standards for Preventing the Horizontal and Vertical Spread of Fires in Grain Handling Properties; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
15. Belt Conveyors for Bulk Materials, Part I and Part II, Data Sheet 570, Revision A; National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.
16. Suggestions for Precautions and Safety Practices in Welding and Cutting; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143- 1269.
17. Food Bins and Tanks, Data Sheet 524; National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.
18. Pneumatic Dust Control in Grain Elevators; National Academy of Sciences, Washington, DC. (Available from National Technical Information Service, Springfield, Virginia 22151.)
19. Dust Control Analysis and Layout Procedures for Grain Storage and Processing Plants; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
20. Standard for the Installation of Blower and Exhaust Systems for Dust, Stock and Vapor Removal, NFPA 91; National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.
21. Standards for the Installation of Direct Heat Grain Driers in Grain and Milling Properties; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
22. Guidelines for Lubrication and Bearing Maintenance; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
23. Organized Maintenance in Grain and Milling Properties; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.

24. Safe and Efficient Elevator Legs for Grain and Milling Properties; Mill Mutual Fire Prevention Bureau, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
25. Explosion Venting and Suppression of Bucket Elevators; National Grain and Feed Association, P.O. Box 28328, Washington, DC 20005.
26. Lightning Protection Code, NFPA 78; National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.
27. Occupational Safety in Grain Elevators, DHHS (NIOSH) Publication No. 83-126; National Institute for Occupational Safety and Health, Morgantown, West Virginia 26505.
28. Retrofitting and Constructing Grain Elevators; National Grain and Feed Association, P.O. Box 28328, Washington, DC 20005.
29. Grain Industry Safety and Health Center – Training Series (Preventing grain dust explosions, operations maintenance safety, transportation safety, occupational safety and health); Grain Elevator and Processing Society, P.O. Box 15026, Commerce Station, Minneapolis, Minnesota 55415-0026.
30. Suggestions for Organized Maintenance; The Mill Mutual Loss Control Department, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
31. Safety – The First Step to Success; The Mill Mutual Loss Control Department, 1 Pierce Place, Suite 1260 West, Itasca, Illinois 60143-1269.
32. Emergency Plan Notebook; Schoeff, Robert W. and James L. Balding, Kansas State University, Cooperative Extension Service, Extension Grain Science and Industry, Shellenberger Hall, Manhattan, Kansas 66506.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: APD Admin. Order 10-1988, f. 7/7/88, ef. 7/7/88.

Notes

Historical Notes for Subdivision R

NOTE: Division 2/R, SPECIAL INDUSTRIES, contains both federal standards which have been adopted by reference, and Oregon-initiated rules. OAR 437-002-0300 is the rule which adopts by reference federal standards. Those which begin with the words "Reserved for" have not been adopted by reference.

NOTE: OAR 437-002-0301, Oregon Rules for Ornamental Tree and Shrub Services. These rules were first adopted by OR-OSHA Admin. Order 27-1990, filed 12/12/90, EFFECTIVE 2/1/91. An amendment was made to OAR 437-002-0301 by OR-OSHA Admin. Order 3-1994, filed 8/1/94, EFFECTIVE 8/1/94. Amended by OR-OSHA Admin. Order 1-1996, filed 2/16/96, effective 2/16/96.

NOTE: OAR 437-002-0312, Pulp, Paper and Paperboard Mills. These rules are a combination of federal rules from 1910.261 and Oregon rules in Division 75. Division 75 was repealed when these rules were adopted as Admin. Order 7-1994, adopted 11/4/94, effective 1/3/95.

This section of Division 2/R includes 3 federal standards which have been adopted by reference by OR-OSHA Admin. Order 14-1991, EFFECTIVE 11/1/91. These are 1910.262, Textiles; 1910.263, Bakery Equipment; and 1910.264, Laundry Machinery and Operations. These federal standards replaced Divisions 76, 77, and 78, which had identical titles.

The following federal standard on Sawmills (29 CFR 1910.265, with the exception of 1910.265(a)(1)) has been adopted by reference into Division 2/R, Special Industries (formerly Special Processes), by OR-OSHA Admin. Order 7-1993, filed 6/8/93, EFFECTIVE 8/1/93.

Oregon Division 79, Lumber, Plywood and Shingle Manufacturing, has been repealed with the adoption of 1910.265. However, several Oregon-initiated rules have been retained and renumbered as part of Division 2/R. These Oregon-initiated rules are for areas NOT covered by 1910.265 and include the following:

Additional Oregon rules for Sawmills;

Rules for Veneer and Plywood Machinery; and

Additional definitions and rules for Shake and Shingle Machinery.

NOTE: In Oregon, 1910.265(c) and (d) will continue to apply to plywood, cooperage and veneer, as was the case with Division 79.

1910.266 PULPWOOD LOGGING. (Reserved)

NOTE: In Oregon, Pulpwood Logging rules are provided in OAR 437, Division 7, Forest Activities.

1910.267 AGRICULTURAL OPERATIONS. (Reserved)

NOTE: In Oregon, Division 4, Agriculture, applies.

The following federal standard on Telecommunications (29 CFR 1910.268) has been adopted by reference into Division 2/R, Special Industries (formerly Special Processes), by OR-OSHA Admin. Order 11-1993, filed 8/4/93 EFFECTIVE 10/1/93, with the exception of 1910.268(a)(1), (b)(3), (d)(1), (f)(1), (n)(11)(iv) and (v), and (q).

Oregon Division 82, Telecommunications, was repealed when these rules were adopted. However, several Oregon-initiated rules have been retained and renumbered as part of Division 2/R in OAR 437-002-0316. These Oregon-initiated rules are for areas NOT covered by 1910.268 and include the following:

Additional applicability to telephone, TV cable and other signaling equipment centers;

Rules for employee protection in public workplaces, personal protective equipment, and training; and

Additional definitions.

Amended by OR-OSHA Admin. Order 1-1996, filed 2/16/96, effective 2/16/96.

The following federal standard 1910.269 on Electric Power Generation, Transmission and Distribution, has been adopted by reference into Division 2/R, Special Industries, by OR-OSHA Admin. Order 3-1994, filed 8/1/94, EFFECTIVE 8/1/94. Oregon-initiated rule 437-002-0317 has also been adopted to continue coverage historically provided in Oregon. See Note on page 2 for federal stays for some of the following rules.

NOTE: OSHA is staying the enforcement of the following paragraphs of 1910.269 until November 1, 1994: (b)(1)(ii), (d) except for (d)(2)(i) and (d)(2)(iii), (e)(2), (e)(3), (j)(2)(iii), (l)(6)(iii), (m), (n)(3), (n)(4)(ii), (n)(8), (o) except for (o)(2)(i), (r)(1)(vi), (u)(1), (u)(4), and (u)(5). OSHA is also staying the enforcement of paragraphs (n)(6) and (n)(7) of 1910.269 until November 1, 1994, but only insofar as they apply to lines and equipment operated at 600 volts or less. Further, OSHA is staying the enforcement of paragraph (v)(11)(xii) of 1910.269 until February 1, 1996.

Federal standard 29 CFR 1910.272, Grain Handling Facilities, has been adopted by reference into Division 2/R, Special Industries, by APD Admin. Order 10-1988, adopted and effective 7/7/88; amended by OR-OSHA Admin. Order 23-1990, adopted 9/28/90, effective 12/1/90; and amended by OR-OSHA Admin. Order 3-1996, adopted 7/22/96, effective 7/22/96.

Federal standards 29 CFR 1910.274, Sources of Standards, and 29 CFR 1910.275, Standards Organizations, have been adopted by reference into Division 2/R, Special Industries, by OR-OSHA Admin. Order 14-1991, adopted 10/10/91, effective 11/1/91.

NOTE: Oregon OSHA adopted by reference corrections and technical amendments issued by federal OSHA and published in the Federal Register. Federal OSHA made simple corrections, deleted redundant provisions, and clarified and reorganized various other provisions throughout the standards. OR-OSHA Admin. Order 4-1997 filed 4/2/97, effective 4/2/97.

NOTE: Federal OSHA published in the Federal Register the new Respiratory Protection Standard. The new standard replaces respiratory protection standards that were adopted in 1971 by OSHA. The new respiratory protection text is in general industry, 29 CFR 1910.134. The text previously in 1910.134 has been redesignated as 1910.139, Respiratory Protection for M. Tuberculosis. Four subdivisions in the Construction standard have also been amended. OR-OSHA Admin. Order 3-1998, filed 7/7/98, effective 7/7/98.

NOTE: This rulemaking repealed Oregon-initiated rule portion OAR 437-002-0316(10), Tree Trimming – Electrical Hazards, and the “NOTE” immediately preceding it, and replaced both by adopting 1910.268(q), Tree Trimming – Electrical Hazards. These amendments were made in OR-OSHA Admin. Order 3-1999, filed and effective April 30, 1999.

NOTE: Federal OSHA made amendments in general industry and construction in both safety and health standards that will revise or eliminate duplicative, inconsistent, or unnecessary regulatory requirements without diminishing employee protections. Changes being made to health standards include reducing the frequency of required chest x-rays and eliminating sputum-cytology examinations for workers covered by the coke oven and inorganic arsenic standards, and changing the emergency-response provisions of the vinyl chloride standard. Changes being made to OSHA safety standards include eliminating the public safety provisions of the temporary labor camp standard, eliminating unnecessary cross-references in the textile industry standards, and others. OR-OSHA Admin. Order 4-1999, filed 4/30/99, effective 4/30/99.

NOTE: Oregon OSHA removed a one-line paragraph in Division 2/R, General Industries/Special Industries. The specific paragraph is OAR 437-002-0312(4)(j)(C), concerning rail mounted cranes, in Oregon Rules for Pulp, Paper and Paperboard Mills. Federal OSHA requested we remove the paragraph in order to be as effective as their standard. OR-OSHA Admin. Order 2-2001, filed and effective 2/5/01.

NOTE: The current brush chipping rules found in Division 2/R, OAR 437-002-1910.269, Power Generation, OAR 437-002-0310(6)(a) through (r), Tree and Shrub, and Division 3/V, Construction/ Power Transmission and Distribution, Power Line Construction have different requirements. This has led to inconsistency in OR-OSHA’s requirements depending on the industry where the work is done.

Oregon OSHA consolidated the various rules from each division into one rule that will apply to all employees operating chippers. The new rule will be located in Division 2/R (general industry) as 437-002-0310 amended paragraph (6), and in Division 3/V (construction) as 437-003-0707.

There should be no additional cost to employers due to this rule consolidation. Employers that have worked under Division 2, General Industry, and Division 3, Construction, have already worked with all the rules. The new rules have been written and reorganized to make them easier to understand.

OR-OSHA Admin. Order 5-2001, filed and effective 4/6/01.

NOTE: OR-OSHA Admin. Order 12-2001, filed and effective 10/26/01.

Clarifies language about hearing protection for employees in shrub and tree services.

NOTE: Federal OSHA published, in the June 8, 2004 Federal Register, error corrections (typographical and reference) to four standards. Oregon OSHA's standards must be at least as effective as federal OSHA, therefore, we are adopting the corrections.

The first correction deletes two references to a nonexistent table in the Mechanical Power-Transmission Apparatus Standard. The second is a correction of typographical errors in the Mechanical Power Presses Standard. The third correction is to a cross-reference in the Telecommunications Standard. The fourth correction is to a reference to a table contained in the Hazardous Materials Standard for Hydrogen.

These changes are in Oregon OSHA's Divisions 2/H, 2/O, and 2/R. Federal OSHA amended CFR 1926.307 in the June 8, 2004 Federal Register. Oregon OSHA did not adopt 1926.307, therefore, it is not included in this rulemaking.

This is OR-OSHA **Administrative Order 4-2004, adopted and effective September 15, 2004.**

NOTE: Federal OSHA published in the September 13, 2005 Federal Register a final rule to delete from its standards three references to national consensus standards and two references to industry standards that are outdated. Deleting these references does not reduce employee protections. By eliminating the outdated references OSHA clarifies employer obligations under the applicable OSHA standards and reduces administrative burdens on employers and OSHA.

This final rule updates standards on hazardous materials, flammable and combustible liquids; general environmental controls, temporary labor camps; hand and portable powered tools and other hand held equipment, guarding of portable powered tools; welding, cutting, and brazing, arc welding and cutting; and special industries, sawmills. All in general industries standards.

Oregon OSHA adopts all these changes to remain at least as effective as Federal OSHA standards, with the exception of amending 1910.142 Temporary Labor Camps, which Oregon did not adopt. OAR 437-002-0142 Labor Camps, applies in Oregon.

This is OR-OSHA **Administrative Order 4-2005, adopted and effective December 14, 2005.**

NOTE: This rulemaking is to keep Oregon OSHA in harmony with recent changes to Federal OSHA's standards.

Federal OSHA published in the December 27, 2011 Federal Register corrections of typographical errors and non-substantive technical amendments to a number of standards in general industry, construction, and shipyard employment. The technical amendments include updating or revising cross-references. These revisions do not affect the substantive requirements or coverage of those standards, do not modify or revoke existing rights or obligations, and do not establish new rights or obligations.

Oregon OSHA adopts these corrections and amendments to the standards Oregon has adopted previously to reflect federal OSHA's changes. We are also making rule reference changes in a number of standards to reflect the newly adopted OAR 437-002-0134 Personal Protective Equipment.

This is Oregon OSHA **Administrative Order 1-2012, adopted and effective April 10, 2012.**

NOTE: Oregon OSHA adopts new rule, OAR 437-002-0146 Confined Spaces, which replaces 1910.146 Permit-Required Confined Spaces, in Division 2/J General Environmental Controls. This expands the scope of the new rule to include the construction industry.

During the 2011 proposal, several issues were discovered that needed to be resolved. We reconvened our stakeholder groups to resolve those issues and addressed any other areas for clarification. The identified issues include: revising and including several definitions, language for closing permits, ensuring employee access to written materials, ensuring all actions required by the permit are followed, and clarifying when alternate entry cannot be used.

Other areas amended for clarification include:

Permit Space Program.

Changed the requirement to catalog all confined spaces to catalog all permit spaces.

If the permit program needs to be revised, the language was changed that prohibiting entry into any space; to any space that is affected by that revision until the revision is complete.

Evacuation. Added language on what to do if entrants need to evacuate a permit space.

Decontamination. There was language requiring patient decontamination. The group consensus was to move this language to the appendix on rescue. In its place, language was added requiring MSDSs and providing them to the medical providers.

Rescue.

For non-entry rescue – modified the language to include a rescue person, as the rescue “team” may only consist of the attendant retrieving the entrant from the space.

For entry rescue – language change from ensuring the rescue team can proficiently perform rescues to ensuring rescue teams can efficiently perform rescues.

Added language requiring that, if a third-party rescue service is used, that the agreement is in writing.

Alternate Entry.

Changed the language in the exception for alternate entry.

Added language to specify which parts of the rule don't apply when one uses alternate entry.

Added a condition on when the space must be evacuated during alternate entry (new hazard or conditions change).

Training. Moved the awareness training piece to the bottom of the training section to avoid confusion and clarified that it is only for employees who work around permit spaces.

Records. Modified the record retention section to refer back to the rule that requires a review of the permit program.

The requirements of this standard are similar to the requirements of the existing general industry standard, but are written to clarify employer obligations and eliminate confusing requirements.

This rulemaking amends Oregon-initiated rules OAR 437-002-0182, 437-002-0256, and 437-002-0312 to update the rule reference to the new Oregon rule 437-002-0146 Confined Spaces. Also amended to reflect the new Confined Spaces rules are 1910.120 Appendix E, and 1910.269 that currently refer the reader to 1910.146. We also repealed 1926.21(b)(6) in Division 3/C and placed a note referring the reader to Division 2/J, 437-002-0146 Confined Spaces.

This is Oregon OSHA **Administrative Order 6-2012, adopted September 28, 2012, and effective April 1, 2013.**

NOTE: This rulemaking is to keep Oregon OSHA in harmony with recent changes to federal OSHA's standards.

Oregon OSHA amends standards in Division 2, general industry, and Division 3, construction, to reflect federal OSHA updates published in the June 13, 2013 Federal Register. Also included in this rulemaking are minor corrections from federal OSHA of the June 13, 2013 Federal Register with the November 6, 2013 Federal Register. Corrections are to addresses and reference clarification for graphics. Federal OSHA updated its general industry and construction signage rules by adding references to the latest version of the American National Standards Institute ("ANSI") standards on accident prevention signs and tags, ANSI Z535.1-2006 (R2011), Z535.2-2011 and Z535.5-2011. OSHA retained references to the earlier ANSI signage standards, ANSI Z53.1-1967, Z35.1-1968 and Z35.2-1968. This rulemaking provides employers the option to comply with either the earlier or updated standards.

Federal OSHA amended 1926.201 and 1926.202 concerning the Manual on Uniform Traffic Control Devices (MUTCD). Oregon repealed these two standards and has Oregon-initiated rule 437-003-0420 Traffic Control, instead. OAR 437-003-0420 currently references the most current editions, therefore we did not amend with this Federal Register publication.

Federal OSHA amended 1910.261 with updated ANSI standards. In Oregon we have Oregon-initiated rule 437-002-0312 Oregon Rules for Pulp, Paper and Paperboard Mills, which we also amended to reflect the newer ANSI references.

This is Oregon OSHA **Administrative Order 7-2013, adopted and effective December 12, 2013.**

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**. Oregon-initiated rules are printed in italics.

NOTE: On February 24, 2017 Oregon OSHA proposed to revise the existing walking-working surface and personal protective equipment rules for general industry. This proposal was required to harmonize Oregon OSHA's existing Division 2 regulations with the new Federal OSHA's rule titled: "Walking-Working Surfaces and Personal Protective Equipment (Fall Protection Systems)" as published in the Federal Register on November 18, 2016. Federal OSHA's general industry final rule revised the previous walking-working surfaces standards within 29 CFR part 1910, subpart D and created a new standard and two new non-mandatory appendixes for fall protection systems within 29 CFR part 1910, subpart I.

In addition to the significant changes made to Subparts D and I, federal OSHA also amended standards in 29 CFR part 1910, subparts F, N, and R to create uniformity across all of the affected subparts where walking-working surfaces and personal fall protection systems are addressed. Oregon OSHA's proposal made significant revisions to Subdivision 2/D (Walking-Working Surfaces) and Subdivision 2/I (Personal Protective Equipment) of Chapter 437, Division 2 including a proposal for rope access systems.

Subsequently, since many existing Oregon OSHA regulations are based on those within 2/D and 2/I, the following Division 2 subdivisions also were amended in the February 24th proposal: 2/A, 2/F, 2/L, 2/N, 2/R, and 2/RR.

Four public hearings were held during March and April of 2017. Oregon OSHA received oral testimony at three of the public hearings in addition to written comments. Several comments received supported the overall rule making. Several comments opposed specific sections of the overall rulemaking. Major topics Oregon OSHA received comment on were; impacts of limiting acceptable standard guardrail heights to 42 inches +/- 3 inches, use of body belts in travel restraint systems, inspection of permanent mount lifeline systems, fall protection for fixed ladders and the associated inspections, duty to have fall protection when exposed to unprotected sides and edges, duty to have fall protection while exposed to walking-working surfaces not otherwise addressed by proposed 1910.28(b), and rope descent/access systems.

Oregon OSHA considered all comments received. Oregon OSHA, based on comments received, made adjustments to proposed 437-002-2027 Rope Descent & Rope Access Systems. Changes include separating the rules for rope descent from those for rope access with the exception of anchorages which both systems share in the final rule. Furthermore, the rope descent portion of the rule is no longer the foundation for the rope access portion. The proposed "assessment of need" for rope access work was removed, a rope access program administrator was added, a section listing minimum capacity requirements for rope access specific equipment was added, and a section establishing exceptions to 1910.140 Fall Protection was added when rope access work is conducted. Finally, Oregon OSHA added language to Division 2/I (Personal Protective Equipment) to permit general industry employers to use anchorages for travel restraint systems that meet the same capacity requirements previous afforded to construction employers in the construction regulations (Division 3/M).

This is Oregon OSHA Administrative Order 2-2017, adopted May 16, 2017 and effective November 1, 2017.

NOTE: This rule making is to keep Oregon OSHA in harmony with recent changes to federal OSHA's standards.

Oregon OSHA intended to adopt federal OSHA's revision to 1910.268(g)(1) with Oregon's Administrative Order (AO) 2-2017. AO 2-2017 adopted the majority of federal OSHA's final rule as published in the November 18, 2016 Federal Register for Walking-Working Surfaces and Personal Protective Equipment (Fall Protection Systems). The final federal rule revised the language for personal climbing equipment for Telecommunications work in 1910.268(g)(1) in Subpart N of 1910; however, the federal language for 1910.268(g)(1) was unintentionally omitted in Oregon OSHA's rulemaking process. This omission leaves in place existing rule language. By amending 1910.268(g)(1) in Subdivision 2R, Oregon OSHA will correct the omission, bringing Oregon OSHA's rule language for 1910.268(g)(1) into harmony with current federal OSHA standards before Oregon's 1910.268(g)(1) goes into effect on November 1, 2017.

Unless Oregon OSHA amends 1910.268(g)(1) to reflect the correct language in federal OSHA's adopted Walking-Working Surfaces and Personal Protective Equipment (Fall Protection Systems) rule, employers in Oregon will be directed to obsolete and inaccurate rule references when reading 1910.268(g)(1) in Oregon after November 1, 2017. There were no comments on this rulemaking and no hearings requested.

This is Oregon OSHA Administrative Order 6-2017, adopted September 5, 2017 and effective November 1, 2017.

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