



Oregon Administrative Rules  
Chapter 437

Division 4  
Agriculture

Work Environment

Subdivision

J

Administrative  
Order 2-2023



Pursuant to **Oregon Revised Statutes (ORS) 654**, The Oregon Safe Employment Act (OSEAct), the Oregon Department of Consumer and Business Services, Occupational Safety and Health Division (Oregon OSHA), adopted these rules.

The Secretary of State designated Oregon Administrative Rules Chapter 437 as the Oregon Occupational Safety and Health Division Rules. Six subject areas are designated as “Divisions” of these rules.

- **Division 1** Administration of the Oregon Safe Employment Act
- **Division 2** General Occupational Safety and Health Rules
- **Division 3** Construction
- **Division 4** Agriculture
- **Division 5** Maritime Activities
- **Division 7** Forest Activities

Oregon-initiated rules 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 codification structure prescribed by the Secretary of State for Oregon Administrative Rules (OAR):

Chapter	Division	Subdivision	Rule	Section	Paragraphs
437	004	N	0221	(1)	(a)(A)(i)(I)

Cite as 437-004-0221(1)(a)

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

Part	Subpart (Subdivision)	Section	Paragraphs
1910	N	.176	(a)(1)(i)(A)(1)(i)

Cite as 1910.176(a)(1)

The terms “subdivision” and “subpart” are synonymous within OAR 437, Oregon Occupational Safety and Health rules.

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These rules are available for viewing in the Office of the Secretary of State, Oregon State Archives Building, Salem, Oregon.

These rules are available in electronic and printable formats at [osha.oregon.gov](http://osha.oregon.gov).

Printed copies of these rules are available at:

**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.

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**437-004-1105 Sanitation**

## (1) General.

(a) Scope. This applies to permanent agricultural places of employment under conditions not covered by other standards such as OAR 437-004-1110, Field Sanitation and OAR 437-004-9990, Worker Protection Standard.

(b) Definitions applicable to this section.

**Non-water carriage toilet facility** is a toilet facility not connected to a sewer.

**Number of employees** is, unless otherwise stated, the maximum number of employees present at any one time on a regular shift.

**Potable water** is water meeting the bacteriological and chemical quality requirements in the OAR Chapter 333, Division 61, Public Water Systems, of the Oregon State Health Division.

**Sanitary** means free from agents harmful to health.

**Toilet facility** is a fixture in a toilet room for defecation, urination, or both.

**Toilet room** is a room with toilet facilities in or on any place of employment.

**Toxic material** is a material in concentration or amount that exceeds the applicable limit established by a standard, or, lacking an applicable standard, is so toxic as to be a recognized hazard that is causing or is likely to cause death or serious physical harm.

**Urinal** is a toilet facility in a toilet room for the sole purpose of urination.

**Water closet** is a toilet in a toilet room for both defecation and urination and flushed with water.

**Wet process** is any process or operation that normally results in employee walking or working surfaces becoming wet.

(c) Housekeeping.

(A) Keep all work areas as clean as the work allows.

(B) Work area floors must be kept as dry as conditions allow. Where there are wet processes, there must be drainage or false floors, platforms, mats, or other dry standing places, where practicable. Otherwise, provide waterproof shoes or boots.

(d) Waste disposal.

- (A) Any container for solid or liquid waste or refuse that could rot or decompose must not leak. It must be cleanable, sanitary and have a solid tight-fitting cover unless it can be kept sanitary without one.
  - (B) Remove sweepings, solid or liquid wastes, refuse, and garbage to avoid creating a health hazard and often enough to keep the work area sanitary.
- (2) Disposal of waste materials.
- (a) Do not allow scrap, waste material or debris to accumulate in work areas.
  - (b) Remove flammable waste, such as oily rags, or keep it in containers designed or suitable for it.
  - (c) Where the use of machines or equipment creates hazardous waste materials, they must have suitable collecting or removal systems. If the refuse is unsuitable for removal that way, find a safe method of temporary storage and regular removal.
- (3) Water supply.
- (a) Potable water.
    - (A) Every work area must have potable water for drinking and washing.
    - (B) Portable drinking water dispensers must be kept sanitary. They must be capable of being closed and have a tap.
    - (C) Do not use open containers such as barrels, pails, or tanks for drinking water.
    - (D) Do not use common drinking cups and other common utensils.
  - (b) Non-potable water.
    - (A) Outlets for non-potable water must have markings that clearly state that the water is unsafe and is not for drinking, washing, or use with or on food.
    - (B) Non-potable water systems or systems carrying any other non-potable substance must prevent backflow or back siphonage into a potable water system.
    - (C) Do not use non-potable water for washing any part of the body, cooking or eating utensils, or clothing. Clean work areas, other than food processing and preparation areas and personal service rooms, with non-potable water only if it has no chemicals, fecal coliform, or other substances that could create unsanitary conditions or be harmful to employees.
- Note:** Water supply systems design and construction standards are in the Oregon Health Division rules, OAR Chapter 333, Division 61, Public Water Systems.
- (4) Toilet facilities.

## (a) General.

- (A) Except as otherwise stated in this paragraph, there must be toilet facilities that comply with Table 1, in toilet rooms separate for each sex. Base the number of facilities for each sex on the number of employees of that sex. You do not need separate rooms for each sex if the toilet rooms are for one person at a time, can be locked from the inside, and have at least one water closet. Where single-occupancy rooms have more than one toilet facility, count only one facility in each toilet room when using Table 1.

Table 1

	Minimum number of water closets <sup>(1)</sup>
1 to 15	1
16 to 35	2
36 to 55	3
56 to 80	4
81 to 110	5
111 to 150	6
Over 150	<sup>(2)</sup>

<sup>(1)</sup> If women will not be using the toilet facilities, there may be urinals instead of water closets. The number of water closets must not be less than 2/3 of the minimum specified.

<sup>(2)</sup> One additional fixture for each additional 40 employees.

- (B) The requirements of (4)(a)(A) above do not apply to mobile crews or to normally unattended work locations if employees have transportation immediately available to nearby toilet facilities that meet the requirements of this subparagraph.
- (C) The sewage disposal method must not endanger the health of employees.
- (b) Construction of toilet rooms. Each water closet must be in a separate compartment with a door and walls or partitions between fixtures high enough to assure privacy.
- (c) Toilet facilities. Toilet facilities at permanent work sites must be reasonably accessible.
- (5) Washing facilities. Work areas must have adequate facilities or supplies for cleaning hands.
- (6) Change rooms. When a standard requires employees to wear protective clothing because of the possibility of contamination with toxic materials, you must provide change rooms with storage facilities for street clothes and separate storage facilities for the protective clothing. This does not apply to outdoor work.

- (7) Consumption of food and beverages on the premises. This applies only where employees are permitted to eat on the premises.
  - (a) Do not allow workers to eat in a toilet room or in any area exposed to a toxic material.
  - (b) Provide receptacles made of smooth, corrosion resistant, easily cleanable, or disposable materials for the disposal of waste food. Do not allow them to become over filled. Empty them daily unless unused and keep them clean. They must have a solid tight-fitting cover unless they can be kept clean without a cover.
  - (c) Do not store food or beverages in toilet rooms or in areas exposed to a toxic material, medicines or live virus.
- (8) Vermin control. Every enclosed workplace must be built and maintained, as much as practicable, to prevent rodents, insects, and other vermin from entering or living in it.

Statutory Authority: ORS 654.025(2) and 656.726(4)  
Statutes Implemented: ORS 654.001 through 654.295  
History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998

### **437-004-1110 Field Sanitation for Hand Labor Work**

- (1) Scope. This applies to any agricultural establishment where employees do hand-labor operations in the field.
- (2) Exceptions. These rules do not apply to:
  - (a) Logging operations;
  - (b) The care or feeding of livestock;
  - (c) Hand-labor operations in permanent structures (e.g., canning facilities or packing houses); or
  - (d) Machine operators working entirely separate from hand-labor operations.

- (3) Definitions.

**Agricultural employer** – See universal definition in 4/B, OAR 437-004-0100.

**Agricultural establishment** – See universal definition in 4/B, OAR 437-004-0100.

**Hand labor operation** – means agricultural activities or agricultural operations performed by hand or with hand tools, including:

- (A) Hand-cultivation, hand-weeding, hand-planting, and hand-harvesting of vegetables, nuts, fruits, seedlings, or other crops (including mushrooms);
- (B) Hand packing or sorting, whether done on the ground, on a moving machine, or in a temporary packing shed in the field; and



- (C) Except for purposes of **OAR 437-004-1110(6)**, operation of vehicles or machinery, when such activity is in conjunction with other hand-labor operators.

**Handwashing facility** – means a facility providing either a basin, container, or outlet with an adequate supply of potable water, soap, and single-use towels.

**Potable water** – is water meeting the bacteriological and chemical quality requirements in the OAR Chapter 333, Division 61 Public Water Systems, of the Oregon State Health Division.

**Note:** OAR Chapter 333, Division 61 defines **potable water** as “Safe Drinking Water – water which has sufficiently low concentrations of microbiological, inorganic chemical, organic chemical, radiological, or physical substances so that individuals drinking such water at normal levels of consumption, will not be exposed to disease organisms or other substances that may produce harmful physiological effects.”

**Toilet facility** – means a fixed or portable facility designed for adequate collection and containment of the products of both defecation and urination. Toilet facility includes biological, chemical, flush, and combustion toilets and sanitary privies.

- (4) General requirements. Agricultural employers must provide and pay for everything required by this section for employees doing hand-labor operations in the field.
- (5) Potable drinking water.
- (a) Provide potable water that is available immediately to all employees.
  - (b) The water must be suitably cool and in sufficient amounts, taking into account the air temperature, humidity, and the nature of the work, to meet the needs of all employees.
  - (c) Dispense water in single-use drinking cups or by angle jet fountains. Do not use common drinking cups or dippers.
- (6) Toilet and handwashing facilities.
- (a) Provide one toilet facility and one handwashing facility for each 20 employees or fraction thereof.
  - (b) Toilet facilities must have adequate ventilation, appropriate screens, self-closing doors that close and latch from the inside and ensure privacy.
  - (c) Maintain privies and portable toilets as follows:
    - (A) Structures must be free of hazards, in good repair and be stable.
    - (B) Except for urinals, multiple units must have separate compartments with doors with inside latches to ensure privacy.
    - (C) Seats must have lids that raise to allow use as urinals, unless there are separate urinals.

- (d) Privies and portable toilets built after the effective date of these rules must comply with the rules of the Department of Environmental Quality.
  - (e) Provide toilet facilities for each sex, where practicable. Distinctly mark them “women” and “men” in English and in the native language of employees expected to work in the fields or with easily understood pictures or symbols.
  - (f) The employer must ensure that for each toilet facility:
    - (A) There is enough toilet paper to meet the workers’ needs during the shift; and
    - (B) There are toilet paper holders or dispensers for each seat.
  - (g) Locate toilet and handwashing facilities adjacent to each other and no more than a 5 minute or a 1/4-mile (1,320 feet) unobstructed walk from each hand laborer’s place of work in the field.
  - (h) Where, due to terrain, it is not feasible to locate facilities as in (g) above, the facilities must be at the point of closest vehicular access.
- (7) Maintenance.
- (a) Potable drinking water and toilet and handwashing facilities must comply with appropriate public health sanitation practices.
  - (b) Drinking water containers must be made of materials that maintain water quality. Refill them daily or more often as necessary and keep them covered and clean.
  - (c) Toilet facilities must work and be clean and safe.
  - (d) Empty and recharge chemical toilets prior to the start of each season of operation and at least every 6 months thereafter during use or when the tank is three-quarters full, whichever occurs first.
  - (e) Where crops intended for human consumption are produced, toilets must not contaminate crops.
  - (f) Refill handwashing facilities with potable water as necessary to ensure an adequate supply and maintain them in a clean and sanitary condition.
  - (g) Disposal of wastes from facilities, including handwashing water and towels, must not cause unsanitary conditions or contamination of crops.
- (8) Field sanitation notice. Employers that grow or harvest food crops for human consumption must post a notice describing the requirements of these rules and advising where workers may file complaints regarding field sanitation matters. It must be in the language of the majority of the workers.
- (9) Reasonable use.

- (a) The employer must notify each employee of the location of the sanitation facilities and water, and allow each employee reasonable opportunities during the workday to use them. The employer must inform each employee of the importance of good hygiene practices to minimize exposure to the hazards in the field from heat, communicable diseases, retention of urine and agricultural residues, including, but not limited to the following:
- (A) Using the water and facilities provided for drinking, handwashing, and elimination;
  - (B) Drinking water frequently, especially on hot days;
  - (C) Urinating as frequently as necessary;
  - (D) Washing hands both before and after using the toilet; and
  - (E) Washing hands before eating and smoking.

Statutory Authority: ORS 654.025(2) and 656.726(4)  
Statutes Implemented: ORS 654.001 through 654.295  
History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998  
OSHA 4-2011, adopt filed 12/08/2011, effective 12/08/2011

### **437-004-1115 Repealed**

Statutory/Other Authority: ORS 654.025(2), 654.035 & 656.726(4)  
Statutes Implemented: 654.001 through 654.295  
History: OSHA 1-2021, adopt filed 04/30/2021, effective 04/30/2021  
OSHA 4-2021, temporary amend filed 06/30/2021, effective 06/30/2021 through 12/26/2021  
OSHA 15-2021, adopt filed 12/21/2021, effective 12/21/2021  
OSHA 2-2022, temporary amend filed 4/13/2022, effective 4/13/2022  
OSHA 6-2022, adopt filed 10/6/2022, effective 10/7/2022  
OR-OSHA Temporary Administrative Order 1-2023, filed 3/30/23, effective 4/3/23  
OR-OSHA Administrative Order 2-2023, filed. 8/16/23, effective 8/17/23

### **437-004-1120 Agricultural Labor Housing and Related Facilities**

- (1) Application.
- (a) These rules apply to any place, or area of land, where there are living areas, manufactured or prefabricated homes or dwellings or other housing provided by a farmer, farm labor contractor, agricultural employer or other person in connection with the recruitment of workers on an agricultural establishment.
  - (b) These rules apply to any type of labor housing and related facilities together with the tract of land, established, or to be established, operated or maintained for housing workers with or without families whether or not rent is paid or collected.

- (c) Manufactured dwellings and homes must comply with specifications for construction of sleeping places, unless they comply with ORS 446.155 to 446.185 and OAR 918-500-0020(2) that have the requirements and specifications for sanitation and safety design for manufactured dwellings.
  - (d) These rules apply to housing given to, rented, leased to or otherwise provided to employees for use while employed and provided or allowed either by the employer, a representative of the employer or a housing operator.
  - (e) These rules, unless otherwise stated, apply to all occupants of the labor housing and facilities.
  - (f) These rules apply to all labor housing sites owned, operated, or allowed to operate on property under the jurisdiction of any state or municipal authority.
  - (g) Violations relating to the occupants' personal housekeeping practices in facilities that are not common use will not result in citations to the employer.
  - (h) For the purposes of OAR 437-004-1120, labor contractors as defined in ORS 658.405 are employers.
- (2) These rules do not apply to:
- (a) hotels or motels that provide similar housing commercially to the public on the same terms as they do to workers.
  - (b) accommodations subject to licensing as manufactured dwelling parks, organizational camps, traveler's accommodations or recreation vehicle parks and open to the general public on the same terms.
  - (c) manufactured homes or dwellings being moved regularly from place to place because of the work when at parks or camps meant for parking mobile vehicles and open to the general public on the same terms.
- (3) Charging occupants for required services. Operators may not charge for services required by this rule (OAR 437-004-1120). This prohibits pay-per-use toilets, pay-per-use bathing facilities or any other method of paying for individual service requirements.
- (4) Definitions.
- (a) **Clean** means the absence of soil or dirt or removal of soil or dirt by washing, sweeping, clearing away, or any method appropriate to the material at hand.
  - (b) **Common use facilities** are those for use by occupants of more than one housing unit or by occupants of dormitory-style housing.
  - (c) **Common use cooking and eating facility** is a shared area for occupants to store, prepare, cook, and eat their own food.

- (d) **Dining hall** is an eating place with food furnished by and prepared under the direction of the operator for consumption, with or without charge, of the occupants.
- (e) **Facility** means a living area, drinking water installation, toilet installation, sewage disposal installation, food handling installation, or other installation required for compliance with the labor housing and related facility rules.
- (f) **Garbage** means food wastes, food packaging materials or any refuse that has been in contact with food stuffs.
- (g) **Housing site** is a place where there are living areas.
- (h) **Livestock operation** is any place, establishment or facility with pens or other enclosures in which livestock is kept for purposes including, but not limited to, feeding, milking, slaughter, watering, weighing, sorting, receiving, and shipping. Livestock operations include, among other things, dairy farms, corrals, slaughterhouses, feedlots, and stockyards. Operations where livestock can roam on a pasture over a distance are outside this definition.
- (i) **Living area** is any room, structure, shelter, tent, manufactured home or dwelling or prefabricated structure, vehicle or other place housing one or more persons.
- (j) **Manufactured dwelling** is a residential trailer, built before January 1, 1962, for movement on the highway, that has sleeping, cooking and plumbing facilities; or, a mobile home, constructed for movement on the highway, that has sleeping, cooking and plumbing facilities, built between January 1, 1962 and June 15, 1976 and meeting the requirements of Oregon mobile home law in effect at the time of construction.
- (k) **Manufactured home** is a structure built for movement on the highway that has sleeping, cooking and plumbing facilities and is used as a residence. Built on or after June 15, 1976 to comply with federal manufactured housing standards and regulations in effect at the time of construction. More information on these definitions is in ORS 446.003(26).
- (l) **Operator** means any person or company that operates labor housing and/or related facilities.
- (m) **Potable water** is water meeting the bacteriological and other requirements of the Public Health Division of the Oregon Department of Human Services.

- (n) **Prefabricated structure** means a building or subassembly which has been in whole or substantial part manufactured or assembled using closed construction at an off-site location to be wholly or partially assembled on-site; but does not include a manufactured home or dwelling. Prefabricated structures are manufactured in accordance with the Oregon state building code and rules adopted by the Building Codes Division of the Oregon Department of Consumer and Business Services in OAR 918-674.
  - (o) **Privy** is the same as outhouse or pit toilet but is not the same as portable toilets.
  - (p) **Recyclable material** means containers that are returnable for refund of a deposit or materials gathered as part of a recycling program.
  - (q) **Refuse** includes waste materials such as paper, metal, discarded items, as well as debris, litter and trash.
  - (r) **Sanitary** means free from agents that may be injurious to health.
  - (s) **Sewage** means the water-carried human and animal wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground-water infiltration, surface waters, or industrial wastes as may be present.
  - (t) **Toilet room** is a room in or on the premises of any labor housing, with toilet facilities for use by employees and occupants of that housing.
- (5) Housing registration requirements.
- (a) ORS 658.7050 requires the operator of Agricultural Labor Housing and Related Facilities to register such housing with Oregon OSHA as in (b) below, except the following as defined by ORS 658.705:
    - (A) housing occupied solely by members of the same family,
    - (B) housing occupied by five or fewer unrelated persons, or
    - (C) housing on operations that do not produce or harvest farm crops (Oregon OSHA considers “production of crops” to mean production of farm crops for sale”).
  - (b) Each year, before occupancy, the operator or employer must register agricultural labor housing and related facilities with Oregon OSHA as set out below.
    - (A) The operator must contact Oregon OSHA at least 45 days before the first day of operation or occupancy of the housing and related facilities. Instructions and additional information will come later by mail.

- (B) If the housing and related facilities were not registered in the previous year, the operator must call Oregon OSHA to request a consultation visit to the housing. Oregon OSHA will register housing and related facilities not previously registered only after a pre-occupancy consultation that finds the housing or facility to be substantially in compliance with all applicable safety and health rules.
  - (C) If there were significant changes in the circumstances of the housing or facilities since the last registration, Oregon OSHA may, at its discretion, refer the employer for a consultation prior to re-registering the housing and facilities.
  - (D) Once registered, the operator must display the registration certificate provided by Oregon OSHA in a place frequented by employees. The operator must also provide and display a translation of the certificate in the language or languages used to communicate with employees.
- (c) The Director of the Department of Consumer and Business Services or designee may revoke a labor housing and related facilities registration if Oregon OSHA determines that any of the following apply:
- (A) The application had any negligent or willful material misrepresentation, or false statement.
  - (B) The conditions under which the registration was accepted no longer exist or have changed.
  - (C) The housing and related facilities are not substantially in compliance with the applicable safety and health rules.
- (d) When Oregon OSHA revokes the registration of agricultural labor housing and related facilities, operators or their agents have 30 days to file a written appeal. On receipt of such appeal, the Director of the Department of Consumer and Business Services will hold a contested case hearing on that appeal under ORS 183.413, et seq.
- (e) Any group or individual may protest the proposed registration, continued registration or renewal of any labor housing and related facilities registration under the following conditions:
- (A) The signed and dated protest must be submitted in writing and received by the Director before issuance of the registration or renewal.
  - (B) The protest must include the name, address and phone number of the individual or group filing it.

- (C) The protest must clearly identify which housing and related facilities is the subject of the protest, including the exact physical location and name of the applicant.
  - (D) The protest must clearly state the facts and reasons for the protest. Such facts and reasons must be based on factors that are within the scope of ORS 654, ORS 658.705 through 658.850 and any relevant regulations.
  - (E) When the above provisions are met, such group or individual may participate in the contested case as a party or limited party under OAR 137-003-0005.
- (6) Site requirements.
- (a) The grounds of labor housing and related facilities must be substantially free from waste water, sewage, garbage, recyclable material, refuse or noxious plants such as poison oak and poison ivy.
  - (b) During housing occupancy, grass, weeds and brush must be cut back at least 30 feet from buildings.
  - (c) All housing site land must have adequate drainage. The site must not be subject to flooding when occupied.
  - (d) Adequately dispose of the waste water and food waste under outside water hydrants.
  - (e) The operator of labor housing is responsible for the maintenance and operation of the housing and its facilities.
  - (f) Store all toxic materials such as pesticides, fertilizers, paints and solvents in a safe place.
  - (g) Do not leave empty pesticide containers such as drums, bags, cans, or bottles in the housing area.
  - (h) Prevent or control the breeding of mosquitoes, flies, and rodents in the immediate housing area and within 200 feet of any labor housing and related facilities owned or under lawful control or supervision of the operator.
  - (i) Do not locate labor housing within 500 feet of livestock operations unless the employees in the housing are employed to tend or otherwise work with the animals.
- Note:** This does not apply to animals owned by the housing occupants.
- (j) Provide electricity to all housing units and related facilities. Subdivision 4/S, Electricity applies to ALH.
  - (k) Extension cords or plug strips must have circuit breaker or fuse protection either as part of the set or part of the building wiring.



- (l) Facilities built or remodeled before December 15, 1989, must have a ceiling or wall-type electric light fixture in working order and at least one wall-type electrical outlet in every living area. Facilities built or remodeled after that date must comply with the code in effect at the time of construction or remodeling.
  - (m) Provide a ceiling or wall-type electric light in toilet rooms, lavatories, shower or bathing rooms, laundry rooms, hallways, stairways, the common eating area or other hazardous dark areas.
  - (n) Light privies either directly or indirectly from an outside light source.
  - (o) Provide enough light in corridors and walkways to allow safe travel at night.
  - (p) Each housing site must have its street numbers displayed to be easily visible to responding emergency vehicles on public highways or roads.
  - (q) The lowest point of wooden floor structures must be at least 12 inches above ground.
- (7) Water supply.
- (a) All domestic water furnished at labor housing and related facilities must conform to the standards of the Public Health Division of the Oregon Department of Human Services. The site water system must supply at least 15 psi at the outlet end of all water lines regardless of the number of outlets in use.
  - (b) Have a bacteriological analysis done on the water before occupancy and as often as needed to assure a potable water supply, except when the water comes from a community water system.
  - (c) Provide enough potable water in the labor housing area for drinking, hand washing, bathing and domestic use. An ample supply is at least 35 gallons of water per day per occupant.
  - (d) Arrange, construct and if necessary, periodically disinfect the water storage and distribution facilities to satisfactorily protect the water from contamination. Install all new plumbing in labor housing and related facilities to comply with the Oregon state building code.
  - (e) When potable water is not available in each dwelling unit, there must be a potable water source within 100 feet of each unit and there must be a working, clean drinking fountain for each 100 occupants or fraction thereof.
  - (f) Post as, "Unsafe for drinking," non-potable water that is accessible to occupants. The posting must be in the language of the camp occupants or with a universal symbol.
  - (g) Portable water containers with spigots and tight fitting lids are acceptable for providing and storing drinking water in the housing.

- (A) These containers must be made of impervious non-toxic materials that protect the water from contamination.
  - (B) Wash and sanitize them at least every 7 days.
  - (h) Do not use containers such as barrels, pails or tanks that require dipping or pouring to get the water.
  - (i) Do not use cups, dippers or other utensils for common drinking purposes.
  - (j) Do not allow cross connection between a system furnishing water for drinking purposes and a non-potable supply.
- (8) Bathing, hand washing, laundry, and toilet facilities – General.
- (a) Provide an adequate supply of hot and cold water under pressure for all common use bathing, hand washing, and laundry facilities at all labor housing and related facilities.
  - (b) In installations with bathing, laundry facilities, or flush toilets, the floor and walls must be of readily cleanable finish and impervious to moisture.
  - (c) All common use bathing, hand washing, and laundry facilities must be clean, sanitary and operating properly.
  - (d) Buildings for common use bathing, hand washing, laundry, and toilet facilities must have heating capable of keeping the facility at 68 degrees or more during use.
- (9) Bathing facilities.
- (a) Provide drains in all showers to remove waste water. Slope floors so they drain. Do not use slippery materials for flooring.
  - (b) Provide at least one shower head with hot and cold water under pressure for every 10 occupants or fraction thereof. Unisex shower rooms are acceptable in the same ratios. They must have working locks and provide privacy.
  - (c) Separate common use bathing facilities used for both sexes in the same building by a solid, non-absorbent wall extending from the floor to the ceiling.
  - (d) Mark separate sex bathing facilities, if provided, with “women” and “men” in English and in the native language of employees expected to occupy the housing or with easily understood pictures or symbols.
- (10) Hand washing facilities.
- (a) Provide at least one hand washing sink or basin with hot and cold water under pressure for every 6 occupants or fraction thereof. Each 24 linear inches of “trough” type sink with individual faucets counts as one basin. When each living unit does not have hand washing facilities, locate common use facilities either close to the toilet facilities or close to the sleeping places.

- (b) In common use facilities, do not use a single common towel. If you provide paper towels, there must be a container for their disposal.

(11) Laundry facilities.

- (a) Provide laundry trays, tubs, or machines with plumbed hot and cold water in the combined ratio of 1 for each 30 occupants or each part of 30.
- (b) Provide clothes lines or drying facilities to serve the needs of the occupants.
- (c) Laundry rooms must have drains to remove waste water.
- (d) Each common use laundry room must have a slop sink.

(12) Toilet facilities.

- (a) Locate toilet facilities in labor housing and related facilities within 200 feet from the living area that they serve.
- (b) Locate toilets, chemical toilets, or urinals in rooms built for that purpose.
- (c) Maintain a usable, unobstructed path or walkway free of weeds, debris, holes or standing water from each living area to the common use toilet facilities.
- (d) Provide at least one toilet for every 15 occupants or fraction thereof for each gender in the labor housing. Toilets must assure privacy.
  - (A) If urinals are in the toilet facility and where three or more toilets are required for men, one urinal substitutes for one toilet (24 inches of trough-type urinal equals one urinal), to a maximum of one-third of the total required toilets.
  - (B) Existing urinals must be non-absorbent, non-corrosive materials that have a smooth and cleanable finish. Urinals installed after the effective date of this standard must meet Oregon state building code.
  - (C) If there are no common use toilet facilities, calculate the required ratio without regard to gender.
- (e) Clean common use toilet facilities daily or more often when needed to maintain sanitation.
- (f) Mark separate sex toilet facilities, when provided, with “women” and “men” in English and in the native language of employees expected to occupy the housing or with easily understood pictures or symbols.
- (g) Ventilate all labor housing toilet rooms according to the Oregon state building code.
- (h) Separate common use toilet facilities used for both sexes in the same building by a solid, non-absorbent wall extending from the floor to the ceiling.

- (i) Install privacy partitions between each individual toilet or toilet seat in multiple toilet facilities. The partitions may be less than the height of the room walls.
    - (A) The top of the partition must be not less than 6 feet from the floor and the bottom of the partition not more than 1-foot from the floor. The width of the partition must extend at least 1 1/2 feet beyond the front of the toilet seat.
    - (B) Provide a door or curtain so the toilet compartment is private.
  - (j) Provide common use toilet facilities with toilet paper and holders or dispensers. Also provide disposal containers with lids.
  - (k) Do not allow obstruction of the path or access to a toilet room. If access is through another room, that room must not be lockable.
- (13) Portable toilets, chemical toilets and privies.
- (a) The location and construction of privies must conform to Oregon Department of Environmental Quality standards.
  - (b) Privies must be at least 100 feet from any living area or any facility where food is prepared or served.
  - (c) Portable toilets and privies must have adequate lighting.
  - (d) When in use, service portable and chemical toilets at least weekly or often enough to keep them from becoming a health hazard. Clean portable toilets, chemical toilets and privies at least daily.
- (14) Sewage disposal and plumbing.
- (a) Connect the sewer lines from the labor housing and related facilities to a community sewer system, a septic tank with subsurface disposal of the effluent, pit type privies or other sanitary means conforming to Department of Environmental Quality standards.
  - (b) Install all plumbing in labor housing and related facilities to comply with Department of Environmental Quality standards and the Oregon state building code.
- (15) Garbage and refuse disposal outside of buildings.
- Note:** Recyclable material is not garbage or refuse referred to in this section (15).
- (a) Keep refuse and garbage containers clean and in good repair.
  - (b) Provide at least one 30-gallon or larger container per 15 occupants. Containers must be inside the housing site area and accessible to all occupants.
  - (c) Empty garbage bins and dumpsters at least weekly during use, but always before they become a health hazard or full enough to interfere with full closing of the lid.

- (d) Empty common use cans and portable containers into a bin or dumpster, when full or twice weekly whichever is more frequent. Do not allow garbage on the ground.
  - (e) Keep all refuse and garbage containers covered and the garbage storage area clean to control flies and rodents.
  - (f) Do not burn any food, garbage or wet refuse.
  - (g) Dispose of garbage and refuse according to Department of Environmental Quality standards that govern the disposal of garbage, refuse and other solid wastes.
- (16) Living areas.
- (a) Keep all living areas, safe and in good repair structurally and stable on their foundations. They must provide shelter for the occupants against the elements and protect the occupants from ground and surface water as well as rodents and insects.
  - (b) The walls and roof must be tight and solid. Floors must be rigid and durable, with a smooth and cleanable finish in good repair.
  - (c) For living areas without a working permanent heating system or heaters, the ALH operator must supply portable heaters at no cost to the occupant. These heaters must be capable of keeping the temperature in the living area at a minimum of 68 degrees. Heaters must meet these requirements:
    - (A) Operate by electricity only.
    - (B) Have working safety devices installed by the manufacturer for the particular type heater.
    - (C) Be in good working order with no defects or alterations that make them unsafe.
  - (d) Permanently installed solid fuel or gas fired heaters must meet the following:
    - (A) Install and vent any stoves or other sources of heat that use combustible fuel to prevent fire hazards and dangerous concentration of gases.
      - (i) Solid or liquid fuel heaters or stoves installed on or before December 15, 1989, must sit on a concrete slab, insulated metal sheet or other fire resistant material when used in a room with wood or other combustible flooring. Extend it at least 18 inches beyond the perimeter of the base of the stove.
      - (ii) Solid or liquid fuel heaters or stoves must meet the manufacturer's specifications and the Oregon state building code in effect at the time of installation.

- (B) Install fire resistant material on any wall or ceiling within 18 inches of a solid or liquid fuel stove or a stove pipe. Provide a vented metal collar around the stovepipe, or vent passing through a wall, ceiling, floor or roof or combustible material.
  - (C) Heating systems with automatic controls must cut off the fuel supply on failure or interruption of the flame or ignition, or when they exceed a pre-determined safe temperature or pressure.
  - (D) All gas appliances and gas piping must comply with the Oregon state building code in effect at time of installation and the manufacturer's instructions.
  - (E) Do not locate stoves so they block escape from a sleeping place.
  - (e) Provide screens of at least 16 mesh on the doors and windows of the living area. All screen doors must be tight-fitting, in good repair, and self-closing.
  - (f) Provide beds, bunks or cots for each occupant and suitable storage facilities, such as wall cabinets or shelves, for each occupant or family unit.
    - (A) The camp operator must provide a mattress or pad for each bed or bunk.
    - (B) If you provide foam pads, they must be thicker than 2 inches.
    - (C) Do not provide uncovered foam pads.
    - (D) Mattresses or pads must not sit on the floor.
    - (E) The sleeping surface must be at least 12 inches above the floor.
  - (g) Mattresses or pads furnished by the camp operator must be clean, in good repair, and free from insects and parasites.
    - (A) Fumigate mattresses or pads, used uncovered, or treat with an effective insecticide before each season's occupancy. If you provide covers, clean them before each season's occupancy.
    - (B) Store mattresses or pads in a clean, dry place.
  - (h) Space the beds, bunks or cots so that there is enough room to allow for rapid and safe exiting during an emergency.
- Note:** Do not count children 2 years old and younger when calculating square footage requirements in paragraphs (i), (j), (k), and (l).
- (i) In living areas built after August 1, 1975, where workers cook, live, and sleep, provide at least 100 square feet per occupant.
  - (j) In living areas built before August 1, 1975, where workers cook, live and sleep, provide at least 60 square feet per occupant.

- (k) Each sleeping room without double bunk beds must have at least 50 square feet of floor space per employee. Where there are double bunk beds, provide 40 square feet per occupant. Do not use triple bunks.
  - (l) Beginning on January 1, 2018 all agricultural labor housing, where workers cook, live and sleep in the same area, must provide 100 square feet per occupant.
  - (m) For units built after April 3, 1980 at least one-half the required floor space in each living area must have a minimum ceiling height of 7 feet. Floor space with a ceiling height less than 5 feet does not count toward the minimum required floor space.
  - (n) Beginning on January 1, 2018 only areas with a 7 foot ceiling height will count toward the required square footage of any living or sleeping area. Housing built or remodeled between January 26, 2009 and January 1, 2018 must have minimum 7-foot high ceilings for the space to count toward any required square footage.
  - (o) Provide separate private sleeping areas for unrelated persons of each sex and for each family unit.
  - (p) Provide windows or skylights with a total area equal to at least 10 percent of the required floor area. At least one-half (nominal) the total required window or skylight area must be openable to the outside. Adequate mechanical ventilation may substitute for openable window space. Not more than one-half the required space can be met with skylights. Openable, screened windows in doors count toward this requirement.
  - (q) Before occupancy clean all living areas and eliminate any rodents, insects, and animal parasites.
- (17) Fire protection.
- (a) All fires must be in equipment designed for that use. Do not allow open fires within 25 feet of structures.
  - (b) Each season, at the time of initial occupancy, each living area must have a working approved smoke detector.  
**Note:** The camp operator is not responsible for daily maintenance of the detector or the actions of occupants that defeat its function.
  - (c) Provide fire extinguishing equipment in a readily accessible place, not more than 50 feet from each housing unit. The equipment must provide protection equal to a 2A:10BC rated extinguisher.  
**Note:** Hoses are acceptable substitutes for extinguishers only if the water supply is constant and reliable. Hoses must be immediately available for firefighting use.

- (d) All living areas with more than one room, built before December 15, 1989, with one door, must have, in addition to a door, a window in each sleeping room that can be an exit in case of fire.
  - (A) This window must have an openable space at least 24 inches by 24 inches, nominal.
  - (B) The lowest portion of the opening must be less than 48 inches above the floor.
  - (C) This window must open directly to the outdoors and be readily openable by the occupants from inside without breaking the glass.
  - (D) Label the escape window as an emergency exit.
- (e) Living areas built on or after December 15, 1989, must meet the requirements for emergency exits in applicable rules of the Building Codes Division of the Oregon Department of Consumer and Business Services. Required emergency exit windows in sleeping rooms must have a clear net opening of at least 5.7 square feet, minimum vertical opening of 22 inches and minimum horizontal opening of 20 inches.

**Note:** Construct and maintain all living areas in labor housing and related facilities to comply with other applicable local and state laws and regulations in effect at the time of construction or remodel.

- (f) A second story must have at least two exits when its occupant load is 10 or more. Comply with the Oregon state building code.
  - (g) Occupants on floors above the second story and in basements must have access to at least two separate exits from the floor or basement as required by the Oregon state building code.
- (18) Common use cooking and eating facilities and equipment.
- (a) When provided, common use cooking or food preparation facilities or equipment must have the following:
    - (A) A gas or electric refrigerator, capable of keeping food at or below 41 degrees F.
    - (B) A minimum equivalent of two cooking burners for every 10 persons or part thereof, or 2 families, whichever requires the most burners. If a gas or electric hotplate or wood stove is within 18 inches of a wall, that wall must be made of or finished with smooth cleanable, nonabsorbent, grease-resistant and fire-resistant material.

**Note:** Labeled and listed appliances are exempt from the 18-inch requirement when installed according to their listing.



- (C) No liquid petroleum gas (LPG like propane) tanks in use inside any occupied building. Outside tanks must connect to appliances with lines approved for that purpose.
  - (D) Food storage shelves, food preparation areas, food contact surfaces and floors in food preparation and serving areas must be made of or finished with smooth, non-absorbent, cleanable material; and
  - (E) A table and chairs or equivalent seating and eating arrangements to accommodate the number of occupants living in the sleeping place.
- (b) Refrigerators and stoves or hot plates must always be in working condition.
  - (c) Clean the facilities and equipment before each occupancy.
  - (d) Common use kitchen and dining areas must be separate from all sleeping quarters. There can be no direct opening between kitchen or dining areas and any living or sleeping area.
  - (e) If the operator becomes aware of or has reason to suspect that anybody preparing, cooking or serving food has a communicable disease as listed in paragraph (22), the operator must bar them from the cooking facility until the disease is no longer communicable.
  - (f) Buildings must have heating capable of keeping the facility at 68 degrees or more during use.
  - (g) Facilities must be in buildings or shelters. Doors, windows and openings, if any, must have screens of 16 mesh or smaller.
- (19) Dining halls and equipment.
- (a) When provided, dining halls or equipment must have the following:
    - (A) A gas or electric refrigerator, capable of keeping food at or below 41 degrees F.
    - (B) A minimum equivalent of two cooking burners for every 10 persons or part thereof, 2 families, whichever requires the most burners. If a gas or electric hotplate or wood stove is within 18 inches of a wall, that wall must be made of or finished with smooth cleanable, nonabsorbent, grease-resistant and fire resistant material.
- Note:** Labeled and listed appliances are exempt from the 18-inch requirement when installed according to their listing.
- (C) No liquid petroleum gas (LPG like propane) tanks in use inside any occupied building. Outside tanks must connect to appliances with lines approved for that purpose.

- (D) Food storage shelves, food preparation areas, food contact surfaces and floors in food preparation and serving areas must be made of or finished with smooth, non-absorbent, cleanable material; and
  - (E) A table and chairs or equivalent seating and eating arrangements to accommodate the number of occupants living in the sleeping place.
  - (b) Refrigerators and stoves or hot plates must always be in working condition.
  - (c) Clean the facilities and equipment before each occupancy.
  - (d) Common use kitchen and dining areas must be separate from all sleeping quarters. There can be no direct opening between kitchen or dining areas and any living or sleeping area.
  - (e) If the operator becomes aware of or has reason to suspect that anybody preparing, cooking or serving food has a communicable disease as listed in paragraph (22), the operator must bar them from the cooking facility until the disease is no longer communicable.
  - (f) Buildings must have heating capable of keeping the facility at 68 degrees or more during use.
  - (g) The facility must comply with the 2005 edition of the FDA Food Code.
- Note:** Follow Division 4, Agriculture when it differs from the FDA Food Code. The code is available at: <https://www.fda.gov/food/fda-food-code/food-code-2005> or contact the Oregon OSHA Resource Center at 800-922-2689 or in Salem 503-378-3272.
- (h) Facilities must be in buildings or shelters. Doors, windows and openings, if any, must have screens of 16 mesh or smaller.
- (20) Single unit cooking facilities.
- (a) When provided, single unit cooking, eating and dining facilities or equipment must have the following:
    - (A) A gas or electric refrigerator, capable of keeping food at or below 41 degrees F.
    - (B) A minimum equivalent of two burners for cooking for every 10 persons or part thereof, or 2 families, whichever requires the most burners. If a gas or electric hotplate or wood stove is within 18 inches of a wall, that wall must be made of or finished with smooth cleanable, nonabsorbent, grease-resistant and fire resistant material.
- Note:** Labeled and listed appliances are exempt from the 18-inch requirement when installed according to their listing.
- (C) No liquid petroleum gas (LPG like propane) tanks in use inside. Outside tanks must connect to appliances with lines approved for that purpose.

- (D) Food storage shelves, food preparation areas, food contact surfaces and floors in food preparation and serving areas made of or finished with smooth, non-absorbent, cleanable material.
  - (E) A table and chairs or equivalent seating and eating arrangements to accommodate the number of occupants living in the sleeping place.
  - (F) A refrigerator and stove or hot plate in working condition.
- (b) Clean the facilities before each occupancy.
- (21) First aid. OAR 437-004-1305, Medical and First Aid, applies to all labor housing and related facilities. This rule includes requirements for first aid supplies, an emergency medical plan and a plan of communication.

**Note:** Division 4/K requires all employees know about the first aid requirements and emergency medical plans. If employees' native language is other than English, this must be taken into account in meeting this requirement.

- (22) Disease Reporting. The camp operator must comply with Oregon Health Authority's OAR 333-018-0000: Who Is Responsible for Reporting and OAR 333-018-0015: What Is To Be Reported And When.

**Note:** Each Health Care Provider knowing of or attending a case or suspected case of any of the diseases, infections, or conditions listed in OAR 333-018-0015 shall report such cases as specified. Where no Health Care Provider is in attendance, any individual knowing of such a case shall report in a similar manner.

**Note:** Human reportable diseases, infections, microorganisms, and conditions, and the time frames within which they must be reported are as follows:

Immediately, day or night: *Bacillus anthracis* (anthrax); *Clostridium botulinum* (botulism); *Corynebacterium diphtheriae* (diphtheria); Severe Acute Respiratory Syndrome (SARS) and infection by SARS-coronavirus; *Yersinia pestis* (plague); intoxication caused by marine microorganisms or their byproducts (for example, paralytic shellfish poisoning, domoic acid intoxication, ciguatera, scombroid); any known or suspected common-source Outbreaks; any Uncommon Illness of Potential Public Health Significance.

Within 24 hours (including weekends and holidays): *Haemophilus influenzae* (any invasive disease; for laboratories, any isolation or identification from a normally sterile site); measles (rubeola); *Neisseria meningitidis* (any invasive disease; for laboratories, any isolation or identification from a normally sterile site); Pesticide Poisoning; poliomyelitis; rabies (human or animal); rubella; *Vibrio* (all species).

Within one Local Public Health Authority working day: *Bordetella pertussis* (pertussis); *Borrelia* (relapsing fever, Lyme disease); *Brucella* (brucellosis); *Campylobacter* (campylobacteriosis); *Chlamydomphila* (*Chlamydia*) *psittaci* (psittacosis); *Chlamydia trachomatis* (chlamydiosis; lymphogranuloma venereum); *Clostridium tetani* (tetanus); *Coxiella burnetii* (Q fever); Creutzfeldt-Jakob disease and other transmissible spongiform encephalopathies; *Cryptosporidium* (cryptosporidiosis); *Cyclospora cayetanensis* (cyclosporiasis); *Escherichia coli* (Shiga-toxigenic, including *E. coli* O157 and other serogroups); *Francisella tularensis* (tularemia); *Giardia* (giardiasis); *Haemophilus ducreyi* (chancroid); hantavirus; hepatitis A; hepatitis B (acute or chronic infection); hepatitis C; hepatitis D (delta); HIV infection (does not apply to anonymous testing) and AIDS; *Legionella* (legionellosis); *Leptospira* (leptospirosis); *Listeria monocytogenes* (listeriosis); mumps; *Mycobacterium tuberculosis* and *M. bovis* (tuberculosis); *Neisseria gonorrhoeae* (gonococcal infections); pelvic inflammatory disease (acute, non-gonococcal); *Plasmodium* (malaria); *Rickettsia* (all species: Rocky Mountain spotted fever, typhus, others); *Salmonella* (salmonellosis, including typhoid); *Shigella* (shigellosis); *Taenia solium* (including cysticercosis and undifferentiated *Taenia* infections); *Treponema pallidum* (syphilis); *Trichinella* (trichinosis); *Yersinia* (other than pestis); any infection that is typically arthropod vector-borne (for example: Western equine encephalitis, Eastern equine encephalitis, St. Louis encephalitis, dengue, West Nile fever, yellow fever, California encephalitis, ehrlichiosis, babesiosis, Kyasanur Forest disease, Colorado tick fever, etc.); human bites by any other mammal; CD4 cell count < 200/ $\mu$ l ( $\text{mm}^3$ ) or CD4 proportion of total lymphocytes < 14%; hemolytic uremic syndrome.

Within 7 days: Suspected Lead Poisoning (for laboratories; this includes all blood lead tests performed on persons with suspected lead poisoning).

- (23) Access to ORS and OAR. Those wishing access to any of the Oregon Revised Statutes (ORS) or Oregon Administrative Rules (OAR) referenced here, may contact the Oregon OSHA Resource Center in Salem or the nearest Oregon OSHA Field Office.
- (24) Closure and alternative housing.
- (a) The operator of agricultural labor housing must provide replacement lodging without charge to the occupants if a government agency with the authority to enforce building, health or safety standards declares the housing or facilities to be uninhabitable and orders them vacated.
  - (b) The operator must provide replacement lodging for 7 consecutive days from the time the housing was closed or until the closing agency allows the original housing to reopen, whichever is shorter.
  - (c) Replacement lodging must meet or exceed the health and safety standards of Oregon OSHA. Oregon OSHA must approve the location of the replacement housing before employees are sent to it.
  - (d) Operators must arrange for replacement lodging not later than the end of the day the original housing closes or another date designated by the closing agency.
  - (e) Post the address of the replacement housing:
    - (A) Not later than the end of the day the original housing closes.

- (B) In a place convenient to affected workers.
  - (C) In all languages spoken by the occupants.
  - (f) The posting in (e) above must state that the replacement housing is free to occupants of the closed housing.
  - (g) The operator must give Oregon OSHA a list of names of the occupants and the location of the replacement housing, for each.
  - (h) When the cause of the closure is beyond the control of the agricultural labor housing operator, sections (a), (b), (c), (d), (e) and (g) above do not apply. To determine whether the cause of closure was beyond the control of the operator, Oregon OSHA will consider these circumstances, including but not limited to:
    - (A) Whether the cause of the closure is a natural disaster;
    - (B) Whether the circumstances leading to the closure were known or should have been known to the operator;
    - (C) Whether operator diligence could have avoided the circumstances leading to the closure.
  - (i) Agricultural labor housing occupants entitled to temporary replacement housing under this rule must accept or reject that housing when the original housing closes. These rules do not obligate operators to reimburse displaced occupants for housing they obtain without the operator's knowledge or consent. The operator is responsible for replacement lodging only for as many people as occupied the original closed housing. When an occupant rejects the replacement housing, the operator has no obligation to reimburse that occupant for other replacement housing.
  - (j) Oregon OSHA may issue a citation and assess a monetary penalty for violation of these rules as in ORS 654.071 and 654.086.
- (25) Heat Illness Prevention in Labor Housing.
- (a) Cooling Areas. If rooms where people sleep are not able to maintain an indoor temperature of 78 degrees Fahrenheit or less (using air conditioners, evaporative coolers, air purifiers with coolers, or other reliable means), employers must provide an area(s) for occupants to cool off whenever the heat index outside the housing units is at or above 80 degrees Fahrenheit. The cooling area(s) must be large enough to allow use by at least 50 percent of the occupants at the labor housing at any one time and must use either or any combination of the following two approaches:

- (A) Giving occupants continual access to one or more common rooms that are maintained at or below a temperature of 78 degrees Fahrenheit (using air conditioners, evaporative coolers, air purifiers with coolers, or other reliable means). This can be done by making use of existing common rooms, otherwise unused housing units, or other available indoor spaces that do not present additional risks to the occupants.
- (B) Giving occupants continual access to outdoor rest areas (located away from work areas or activities that could create a hazard). The rest areas must:
  - (i) Be shaded by any natural or artificial means, so that occupants can sit or stand in a normal posture fully in the shade;
  - (ii) Provide water misters, cooling vests, cooling towels, or equally effective means of relief. If relying upon items that can only be used by one individual at a time, enough must be provided to satisfy the 50 percent requirement and they must not be shared without being washed; and
  - (iii) Locate available chairs, benches, and other seating in a manner that encourages use.

**Note:** Although employers are permitted to use either or any combination of the approaches listed in (A) and (B), they are encouraged to provide at least some of the required space using the methods listed in (A).

- (b) **Minimizing Heat in Housing Units.** If rooms where people sleep are not able to maintain an indoor temperature of 78 degrees Fahrenheit or less (using air conditioners, evaporative coolers, air purifiers with coolers, or other reliable means), employers must take the following steps
  - (A) Optimize the ability to keep housing cool by ensuring that windows can be protected from direct sunlight in a manner that minimizes radiant heat during all hours of the day, whether using natural or artificial shade, the provision of window coverings must deflect the sun and not simply absorb the heat, or other equally effective measures. Such measures must not interfere with the ability to open and close windows or create another hazard; and
  - (B) Make fans available at no cost for any housing occupants who wish to use them.
- (c) **Temperature Awareness.** To ensure that housing occupants can remain aware of the effects of heat on the indoor environment, both immediately and on an ongoing basis, employers must provide a thermometer that displays the temperature in both Fahrenheit and Celsius in each individual housing unit. Employers are encouraged, but not required, to provide a device that also measures humidity.

- (d) **Employee and Occupant Information.** In addition to ensuring that employees have received the training required by OAR 437-004-1131(9), the employer must display the “Heat Risks in Housing” poster provided by Oregon OSHA in one or more prominent locations that housing occupants would normally see and must add the necessary emergency contact information to the poster, allowing housing occupants to contact emergency services as necessary.
- (e) **Access to Emergency Services.** Employers must ensure that occupants always have access to a working telephone that can be used to contact emergency services. An electronic device, such as a cell phone, may be used for this purpose only if reception in the area is reliable.

Statutory/Other Authority: ORS 654.025(2), 654.035 & 656.726(4)

Statutes Implemented: ORS 654.001 through 654.295, ORS 658.750, 658.755, 658.780, 658.785, 658.790, 658.805

History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998

OSHA 5-2000, adopt filed 05/18/2000, effective 06/01/2000

OSHA 4-2008, adopt filed 03/24/2008, effective 05/01/2008

OSHA 1-2009, adopt filed 01/26/2009, effective 01/26/2009

OSHA 8-2021, temporary filed 08/02/2021, effective 08/09/2021 through 02/04/2022

OSHA 3-2022, adopt filed 05/09/2022, effective 06/15/2022

## 437-004-1131 Heat Illness Prevention

- (1) **Scope and application.** This standard applies whenever an employee performs work activities, whether in indoor or outdoor environments, where the heat index (apparent temperature) equals or exceeds 80 degrees Fahrenheit.

**Note:** When another applicable standard addresses other hazards that may be present, employers must comply with the requirements of that standard and this standard. Where the requirements of one standard are more protective than another for the same hazard, employers must follow the requirements that provide the higher level of employee protection.

- (a) The following workplaces and operations are exempt from the requirements of this standard.
  - (A) Incidental heat exposures where an employee is not required to perform work activities for more than 15 minutes in any sixty-minute period.
  - (B) Exposures to heat generated from the work process – such as occurs in bakeries – is not subject to this standard. In such cases, employers must follow the requirements of OAR 437-002-0144(2).
  - (C) All emergency operations that are directly involved in the protection of life or property, or the restoration of essential services, such as evacuation, rescue, medical, structural firefighting, law enforcement, utilities, and communications, when employees are engaged in those operations.

- (D) Buildings and structures that have a mechanical ventilation system that keeps the heat index below 80 degrees Fahrenheit.
- (b) The following workplaces and operations are partially exempt from certain requirements of this standard.
  - (A) Employers whose employees perform either “rest” or “light” workloads, as defined in Table 1.1 of Appendix A: Mandatory Information for Heat Illness Prevention, are exempt from the requirements of sections (3) through (10) only when the heat index is less than 90 degrees Fahrenheit.
  - (B) Associated support activities for wildland firefighters, such as fire camp services and fire management, are exempt only from the requirements of section (7).
  - (C) Employees who work from home are subject only to the training requirements in sections (9) and (10).
- (2) Definitions.
  - (a) **Acclimatization** - Temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within seven to fourteen days of regular work for at least two hours per day in the heat. This time frame applies to fit individuals with no underlying medical conditions.
  - (b) **Drinking water** - Potable water that is suitable to drink and that is cool (66 °F – 77 °F) or cold (35 °F – 65 °F).
  - (c) **Heat Illnesses** - Medical conditions resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope, and heat stroke.
  - (d) **Shade** - Blockage of direct sunlight is shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not sufficient when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with working air conditioning. Shade may be provided by any natural or artificial means that does not expose employees to unsafe or unhealthy conditions, and that does not deter or discourage access or use.
  - (e) **Temperature-controlled environment** – an indoor setting where the temperature is maintained with a mechanical cooling system.



- (3) Access to shade. Establish and maintain one or more shade areas that are immediately and readily available to exposed employees that are outdoors when the heat index in the work area equals or exceeds 80 degrees Fahrenheit. The shade areas must meet the following criteria:
- (a) The shade area must either be open to the outside air (at least three open sides) or provide mechanical ventilation for cooling.
  - (b) The amount of shade present must be at least enough to accommodate the number of employees on recovery or rest period, so that they can sit in a normal posture fully in the shade. Employees must remove any PPE that retains heat, such as chemical resistant suits, during recovery and rest periods.
  - (c) The shade must be located as close as practical to the areas where employees are working.
  - (d) Shade present during meal periods must be large enough to accommodate the number of employees on the meal period that remain onsite.
  - (e) If trees or other vegetation are used to provide shade, such as in orchards or forests, the thickness and shape of the shaded area must provide sufficient shadow to protect employees.
- Exception:** When the employer can demonstrate that providing access to shade is not safe or it interferes with the ability of employers and employees to complete the necessary work in a particular situation, for example, during high winds or when an employee is walking through range land, employers must identify and implement alternative cooling measures that provide equivalent protection such as providing cooling vests (either with fans or ice packs), water-dampened cotton clothing, or similar effective measures. The Heat Illness Prevention Plan under section (8) must include the use, care, and maintenance of the alternative cooling methods, in writing.
- (4) Drinking water. Ensure that a sufficient supply of drinking water is immediately and readily available to exposed employees at all times, at no cost, when the heat index in the work area equals or exceeds 80 degrees Fahrenheit.
- (a) Supplied drinking water must be either cool or cold, see subsection (2)(b).
  - (b) Supply each employee with enough drinking water to enable them to consume up to 32 ounces per hour. Employers are not required to supply the entire quantity of drinking water needed for all employees on a full shift at the beginning of the shift. Employers may begin the shift with smaller quantities of drinking water when effective procedures are established to replenish the water consumed during the shift.
  - (c) Employees must have ample opportunity to drink water required under this section.

**Note:** Drinking water packaged as a consumer product and electrolyte-replenishing beverages that do not contain caffeine (for example, sports drinks) are acceptable substitutes, but should not completely replace required water supplies.

- (5) High-heat practices. When engineering controls (such as fans or air conditioning) and administrative controls (such as scheduling work during the cooler part of the day or limiting an employee's exposure) do not reduce an employee's exposure to a heat index of less than 90 degrees Fahrenheit, implement and maintain high-heat practices and procedures by following subsections (5)(a) through (e) below.
- (a) Communication must occur in a language and vocabulary readily understood by all employees, by voice, electronic, or other equally-effective means, so that employees at the worksite can contact a supervisor at any time, when necessary. An electronic device, such as a cell phone, may be used for this purpose only if reception in the area is constant and reliable.
  - (b) Implement one or more of the following to promptly identify any employee suspected of experiencing heat-related illness:
    - (A) Regular communication with employees working alone, such as by radio, cellular phone, or other alternative means;
    - (B) Create a mandatory buddy system; or
    - (C) Implement other equally-effective means of observation or communication.
  - (c) Designate and equip one or more employees at each worksite as authorized to call for emergency medical services, and allow other employees to call for emergency services when designated employees are not immediately available; such a practice supplements existing requirement to ensure that emergency medical care is immediately available in all workplaces, as required by OAR 437-004-1305(4).
  - (d) When employees work in buildings and structures that do not have a mechanical ventilation system, employers must:
    - (A) Directly measure the temperature and humidity in these places at the same time and location when occupied by employees to determine the current indoor heat index;
    - (B) Use the National Institute for Occupational Safety and Health's (NIOSH) Heat Safety Tool app to determine the heat index outside of the building or structure and assume that it is the same inside (See section 2 in Appendix A: Mandatory Information for Heat Illness Prevention); or
    - (C) If the structure is designed or otherwise known to be affected by outdoor humidity, for example, hoop houses and greenhouses in nursery operations, the employer must measure and use the actual humidity inside the structure.

- (e) Develop and implement a written heat illness prevention rest break schedule that protects employees exposed to a heat index equal to or greater than 90 degrees Fahrenheit. Employers must choose and implement only one of the three options; choose either (A), (B), or (C) as described below.

**Note:** The purpose of the heat illness prevention rest breaks is to allow the body to cool down and recover from working when the heat index equals or is greater than 90 degrees Fahrenheit.

**Note:** Option (A) allows an employer to implement a self-designed schedule by building on a minimum rest break schedule using four specified elements. Option (B) allows an employer to implement a schedule by using an example heat illness prevention plan designed by NIOSH. Option (C) allows an employer to implement a schedule by using a simplified schedule designed by Oregon OSHA and based on a high-heat scenario in the NIOSH plan.

(A) Employer-designed heat illness prevention rest break schedule: Implement a written employer-specific, heat illness prevention rest break schedule using the minimum rest break durations and intervals in Table 1. Employers must protect employees from heat illness by integrating the elements in subsections (i) through (iv) into to their heat illness prevention rest break schedule, which may increase the duration or interval of the rest break beyond the minimum requirements to be protective.

- (i) The effect of personal protective equipment (PPE) on the body’s ability to retain heat;
- (ii) The effect of the type of work clothing on the body’s ability to retain heat;
- (iii) Relative humidity, whether work activities are indoors or outdoors; and
- (iv) The intensity of the work being performed.

**Note:** Employers should consider the effect of exposure to direct sunlight when developing employer-specific heat illness prevention rest break schedule.

**Table 1 - Minimum employer-designed heat illness prevention rest break schedule, upon which subsections (i) through (iv) must be applied:**

Heat index (°F)	Rest break durations and intervals
90 or greater	10 minutes every two hours
100 or greater	15 minutes every hour

(B) NIOSH work/rest schedule: Implement a written heat illness prevention rest break schedule using the information found in section 3 of Appendix A: Mandatory Information for Heat Illness Prevention based on NIOSH recommendations.

**Note:** The NIOSH work/rest schedule uses unadjusted ambient temperatures (in degrees Fahrenheit), and employers must follow the instructions underneath Table 3.1 in Appendix A: Mandatory Information for Heat Illness Prevention. Employers must be aware that different work/rest schedules exist for those wearing chemical-resistant suits; see Table 3.2 in Appendix A: Mandatory Information for Heat Illness Prevention.

- (C) Simplified heat illness prevention rest break schedule: Implement a written simplified heat illness prevention rest break schedule using Table 2.

**Table 2 - Minimum simplified rest break schedule:**

Heat index (°F)	Rest break durations and intervals
90 or greater	10 minutes every two hours
95 or greater	20 minutes every hour
100 or greater	30 minutes every hour
105 or greater	40 minutes every hour

**Note:** The Table 2 heat illness prevention rest break schedule is only required during the specified heat index.

- (f) The heat illness prevention rest breaks under subsection (5)(e) are only required during the specified heat index, and may be provided concurrently with any other meal or rest period required by policy, rule or law – if the timing of the preventative rest break coincides with the otherwise required meal or rest period. However, the heat illness prevention rest break must be calculated using only the time spent in the shade and when employees are not performing work other than “rest” or “light” work. The requirement for heat illness prevention rest breaks does not prohibit “rest” or “light” work-related activities conducted in a temperature-controlled environment, such as paperwork, at the discretion of the employee.
  - (g) Except when the heat illness prevention rest breaks coincide with the existing unpaid meal break, the heat illness prevention rest break is a work assignment. Heat illness prevention rest breaks are only required during the time of the shift that the heat index equals or exceeds 90 degrees Fahrenheit.
- (6) Emergency medical plan. The employer’s Emergency Medical Plan must address employee exposure to excessive heat, in accordance with OAR 437-004-1305(4). These plans must address the types medical situations that employees could encounter, including those conditions relating to excessive heat exposure.
- (7) Acclimatization plan. Develop and implement an acclimatization plan and procedures in writing. Employers must choose between two options, either (a) or (b) as described below, and implement the chosen plan.
- (a) Employer-designed acclimatization plan option: Employers who develop their own acclimatization plan must integrate and implement the following factors into their program:

- (A) Acclimated and unacclimated workers;
  - (B) The effects of clothing and personal protective equipment on adding to the heat burden of workers;
  - (C) The personal and environmental risk factors that put workers at a higher risk of heat-related illness;
  - (D) Re-acclimatizing workers as necessary, either due to changes in the weather or a worker spending more than seven days away from the job; and
  - (E) The use and maintenance of auxiliary cooling systems such as water-cooled garments, air-cooled garments, cooling vests, and wetted overgarments.
- (b) NIOSH acclimatization plan option: Employers that choose not to develop their own acclimatization plan must follow the acclimatization plan developed by the Centers for Disease Control and Prevention and NIOSH; see section 4, Appendix A: Mandatory Information for Heat Illness Prevention.

**Note:** Based upon the variable weather patterns across the state, Oregon OSHA recognizes that there is no “one-size-fits-all” acclimatization plan. Employers should be aware that acclimatization to heat takes longer for unfit individuals compared to fit individuals.

**Note:** Employers should consider the effect of exposure to direct sunlight when developing their acclimatization plan.

- (8) Heat illness prevention plan. Develop, implement, and maintain an effective heat illness prevention plan in writing. The plan must be made available at the worksite to employees and to Oregon OSHA upon request. The plan must contain at least the following information:
- (a) How employees will be trained on the hazards of heat exposure and the necessary steps to prevent heat-related illnesses;
  - (b) How to recognize the symptoms of dehydration, and how to respond to suspected heat-related illnesses in others;
  - (c) How sufficient amounts of cool, potable water in work areas will be provided;
  - (d) How employees will be provided frequent opportunities and encouragement to stay hydrated by drinking water;
  - (e) How employees will be provided sufficient space to rest in a shaded area or cool climate-controlled area, and where heat-affected employees may cool off and recover when signs and symptoms of heat-related illnesses are recognized;
  - (f) How the employer will implement the heat illness prevention rest break schedule when necessary to keep employees safe; and

- (g) How the employer will implement heat acclimatization procedures for new employees or employees returning to work from extended absences of seven or more days.
- (9) Supervisor and employee training. Provide heat illness prevention training to all employees, including new employees, supervisory and non-supervisory employees in a language and vocabulary readily understood, and in a manner that facilitates employee feedback. Such training must be provided annually before employees begin work that should reasonably be anticipated to expose them to the risk of heat illness, and include at least the following:
- (a) The environmental and personal risk factors (for example, chronic obstructive pulmonary disease, asthma, kidney disease, obesity, etc.) for heat illness that may limit an individual's tolerance to excessive heat, as well as the added burden of heat load on the body caused by exertion, clothing (See section 5 in Appendix A: Mandatory Information for Heat Illness Prevention), and personal protective equipment;
  - (b) The employer's procedures for complying with the requirements of this standard, including, but not limited to, the employer's responsibility to provide water, heat index information (including the risks to experiencing a heat-related illness), shade, preventative rest breaks, and access to first aid, as well as how employees can exercise their rights under this standard without fear of retaliation;
  - (c) The importance of frequent consumption of small quantities of water, up to 32 ounces per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties;
  - (d) The concept, importance, and methods of the acclimatization plan pursuant to the employer's procedures under section (8);
  - (e) The different types of heat illness, the common signs and symptoms of heat illness, and the appropriate first aid and emergency response to the different types of heat illness, including how heat illness may progress quickly from mild signs and symptoms to a serious and life-threatening condition;
  - (f) The importance for employees to immediately report to the employer, directly or through the employee's supervisor, signs and symptoms of heat illness in themselves or in others; and
  - (g) The effects of nonoccupational factors (drugs, alcohol, obesity, etc.) on tolerance to occupational heat stress.

- (10) Training documentation. Verify compliance with section (9) by preparing and maintaining written or electronic training records that can be provided to Oregon OSHA upon request. Such records must contain the name or identification of each employee trained, the date(s) of the training, and the name of the person who conducted the training. The most recent annual training record for each affected employee must be maintained.

Statutory/Other Authority: ORS 654.025(2), 654.035 & 656.726(4)

Statutes Implemented: ORS 654.001 through 654.295

History: OSHA 3-2022, adopt filed 05/09/2022, effective 06/15/2022





## Appendix A - Mandatory Information for Heat Illness Prevention

To protect the health and safety of employees from heat-related illnesses, employers should consider using the resources in this appendix. Please note that some resources may use temperatures in Celsius instead of Fahrenheit. To convert to degrees Fahrenheit, use this formula: Fahrenheit (°F) = (Celsius x 1.8) + 32

1. Most heat-related illnesses affect workers who do strenuous physical activity. When workers engage in intense work, their bodies create heat. This "metabolic" heat combines with environmental heat (from temperature, sunlight, humidity, etc.) so workers' core temperature can rise to dangerous levels. To prevent a hazardous combination of environmental and metabolic heat, employers should be aware of workers' activity level.

Workload can be classified as rest, light, moderate, heavy, or very heavy.

- Light: Sitting or standing with minimal arm and leg work.
- Moderate: Continuous modest intensity, such as light pushing/pulling or normal walking.
- Heavy: Intense upper body work such as carrying loads or sawing.
- Very heavy: Intense activity at an almost maximum pace.

Table 1.1 Metabolic Heat and Workload (Physical Activity Level)

Level of Workload / Physical Activity *	Examples	Metabolic Rate in Watts, "typical" recognizing that different ways of doing the same task may lead to dramatically different wattage
Rest	<ul style="list-style-type: none"> <li>• Sitting</li> <li>• Thinking</li> </ul>	115
Light	<ul style="list-style-type: none"> <li>• Sitting with minimal hand and arm work</li> <li>• Sewing</li> <li>• Writing or drawing</li> <li>• Driving a car</li> <li>• Occasional or slow walking</li> <li>• Stooping, crouching, or kneeling</li> <li>• Standing watch</li> </ul>	180

Level of Workload / Physical Activity *	Examples	Metabolic Rate in Watts, "typical" recognizing that different ways of doing the same task may lead to dramatically different wattage
Moderate	<ul style="list-style-type: none"> <li>• Pushing and pulling light carts</li> <li>• Hammering nails</li> <li>• Picking fruit or vegetables</li> <li>• Continuous normal walking</li> <li>• Driving or operating mobile equipment</li> <li>• Raking</li> <li>• Mopping or vacuuming floors</li> <li>• Scraping, painting, or plastering</li> <li>• Laundry/dry cleaning</li> <li>• Tapping and drilling</li> <li>• Machining</li> <li>• Molding</li> <li>• Packaging</li> <li>• Laboratory work</li> <li>• Cooking</li> <li>• General carpentry</li> <li>• Using hand tools</li> <li>• Light pushing/pulling or normal walking.</li> </ul>	300
Heavy	<ul style="list-style-type: none"> <li>• Intense arm and trunk work</li> <li>• Carrying loads</li> <li>• Shoveling</li> <li>• Sawing or heavy carpentry</li> <li>• Roofing</li> <li>• Pushing and pulling heavy carts or wheelbarrows</li> <li>• Fast walking (&gt; 4 mph)</li> <li>• Landscaping</li> <li>• Casting</li> <li>• Manual raising and lowering loads</li> <li>• Stacking lumber</li> <li>• Truck and automobile repair</li> <li>• Waxing and buffing by hand</li> <li>• Welding</li> <li>• Heavy item assembly</li> <li>• Grinding and cutting</li> <li>• Drilling rock or concrete</li> <li>• Mixing cement</li> <li>• Felling trees</li> </ul>	415

Level of Workload / Physical Activity *	Examples	Metabolic Rate in Watts, "typical" recognizing that different ways of doing the same task may lead to dramatically different wattage
Very heavy	<ul style="list-style-type: none"> <li>• Any activity done at near maximum pace</li> <li>• Climbing stairs, ladder, or ramp</li> <li>• Using an axe</li> <li>• Intense shoveling or digging</li> <li>• Sledgehammer use</li> <li>• Stacking concrete</li> <li>• Brick or stone masonry</li> </ul>	520

\* Workers who are overweight or obese might produce more metabolic heat than other workers who perform the same tasks. The above table assumes a 70-kg (154-pound) worker.

Table 1.1 is copied from federal OSHA’s guidance on Heat Hazard recognition, which can be accessed at: <https://www.osha.gov/heat-exposure/hazards> under the Metabolic Heat and Workload (Physical Activity Level) tab

2. The OSHA-NIOSH Heat Safety Tool app is a useful resource for planning outdoor work activities based on how hot it feels throughout the day. It features real-time heat index and hourly forecasts specific to your location, as well as occupational safety and health recommendations from OSHA and NIOSH. It can be accessed and downloaded at: <https://www.osha.gov/heat/heat-app>
3. NIOSH Work/rest schedules.

A. Table 3.1. Work/rest schedules for workers wearing normal work clothing\*

Adjusted temperature (°F)†	Light work (minutes work/rest)	Moderate work (minutes work/rest)	Heavy work (minutes work/rest)
90	Normal	Normal	Normal
91	Normal	Normal	Normal
92	Normal	Normal	Normal
93	Normal	Normal	Normal
94	Normal	Normal	Normal
95	Normal	Normal	45/15
96	Normal	Normal	45/15
97	Normal	Normal	40/20
98	Normal	Normal	35/25
99	Normal	Normal	35/25
100	Normal	45/15	30/30
101	Normal	40/20	30/30
102	Normal	35/25	25/35

Adjusted temperature (°F)†	Light work (minutes work/rest)	Moderate work (minutes work/rest)	Heavy work (minutes work/rest)
103	Normal	30/30	20/40
104	Normal	30/30	20/40
105	Normal	25/35	15/45
106	45/15	20/40	Caution‡
107	40/20	15/45	Caution‡
108	35/25	Caution‡	Caution‡
109	30/30	Caution‡	Caution‡
110	15/45	Caution‡	Caution‡
111	Caution‡	Caution‡	Caution‡
112	Caution‡	Caution‡	Caution‡

\* With the assumption that workers are physically fit, well-rested, fully hydrated, under age 40, and have adequate water intake and that there is 30% RH [relative humidity] and natural ventilation with perceptible air movement.

† **Note:** Adjust the temperature reading as follows before going to the temperature column in the table:

Full sun (no clouds): Add 13°

Partly cloudy/overcast: Add 7°

No shadows visible/work is in the shade or at night: no adjustment

**Per relative humidity:**

10%: Subtract 8°

20%: Subtract 4°

30%: No adjustment

40%: Add 3°

50%: Add 6°

60%: Add 9°

‡ High levels of heat stress; consider rescheduling activities.

Adapted from EPA [1993]

Table 3.1 above is copied from the following publication; see page 76 in NIOSH [2016]. *NIOSH criteria for a recommended standard: occupational exposure to heat and hot environments*. By Jacklitsch B, Williams WJ, Musolin K, Coca A, Kim J-H, Turner N. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication 2016-106.

B. Table 3.2 Work/rest schedules for those wearing chemical resistant suits.

		Air Temperature (°F)				
		75	80	85	90	95
Light work	Full sun	Normal	30/30	15/45	Caution§	Stop work
	Partly cloudy	Normal	Normal	40/20	15/45	Stop work
	No sun†	Normal	Normal	Normal	40/20	14/45
Moderate work	Full sun	Normal	20/40	10/50	Caution§	Stop work
	Partly cloudy	Normal	Normal	25/35	Caution§	Stop work
	No sun†	Normal	Normal	Normal	25/35	Stop work
Heavy work	Full sun	35/25‡	10/50	Caution§	Stop work	Stop work
	Partly cloudy	Normal	40/20	15/45	Caution§	Stop work
	No sun†	Normal	Normal	40/20	15/45	Stop work

\* With the assumption that workers are heat-acclimatized, under the age of 40, physically fit, well-rested, fully hydrated, and wearing Tyvek coveralls, gloves, boots, and a respirator. Cooling vests may enable workers to work for longer periods. Adjustments must be made when additional protective gear is worn.

† No shadows are visible or work is in the shade or at night.

‡ 35 minutes work and 25 minutes rest each hour.

§ High levels of heat stress; consider rescheduling activities.

Adapted from EPA [1993]

Table 3.2 above is copied from the following publication; see page 77 in NIOSH [2016]. *NIOSH criteria for a recommended standard: occupational exposure to heat and hot environments*. By Jacklitsch B, Williams WJ, Musolin K, Coca A, Kim J-H, Turner N. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication 2016-106.

4. Acclimatization.

Table 4.1 Acclimatization in workers

Topics	Additional information
Disadvantages of being unacclimatized	<ul style="list-style-type: none"> <li>• Readily show signs of heat stress when exposed to hot environments.</li> <li>• Difficulty replacing all of the water lost in sweat.</li> <li>• Failure to replace the water lost will slow or prevent acclimatization.</li> </ul>
Benefits of acclimatization	<ul style="list-style-type: none"> <li>• Increased sweating efficiency (earlier onset of sweating, greater sweat production, and reduced electrolyte loss in sweat).</li> <li>• Stabilization of the circulation.</li> <li>• Work is performed with lower core temperature and heart rate.</li> <li>• Increased skin blood flow at a given core temperature.</li> </ul>
Acclimatization plan	<ul style="list-style-type: none"> <li>• Gradually increase exposure time in hot environmental conditions over a period of 7 to 14 days.</li> </ul>

	<ul style="list-style-type: none"> <li>For new workers, the schedule should be no more than 20% of the usual duration of work in the hot environment on day 1 and a no more than 20% increase on each additional day.</li> <li>For workers who have had previous experience with the job, the acclimatization regimen should be no more than 50% of the usual duration of work in the hot environment on day 1, 60% on day 2, 80% on day 3, and 100% on day 4.</li> <li>The time required for non-physically fit individuals to develop acclimatization is about 50% greater than for the physically fit.</li> </ul>
Level of acclimatization	<ul style="list-style-type: none"> <li>Relative to the initial level of physical fitness and the total heat stress experienced by the individual.</li> </ul>
Maintaining acclimatization	<ul style="list-style-type: none"> <li>Can be maintained for a few days of non-heat exposure.</li> <li>Absence from work in the heat for a week or more results in a significant loss in the beneficial adaptations leading to an increased likelihood of acute dehydration, illness, or fatigue.</li> <li>Can be regained in 2 to 3 days upon return to a hot job.</li> <li>Appears to be better maintained by those who are physically fit.</li> <li>Seasonal shifts in temperatures may result in difficulties.</li> <li>Working in hot, humid environments provides adaptive benefits that also apply in hot, desert environments, and vice versa.</li> <li>Air conditioning will not affect acclimatization.</li> </ul>

Adapted from [Moseley 1994; Armstrong and Stoppani 2002; DOD 2003; Casa et al. 2009; ACGIH 2014; OSHA-NIOSH 2011].

Table 4.1 above is copied from the following publication; see page 34. NIOSH [2016]. *NIOSH criteria for a recommended standard: occupational exposure to heat and hot environments*. By Jacklitsch B, Williams WJ, Musolin K, Coca A, Kim J-H, Turner N. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication 2016-106.

5. Clothing adjustment factors.

Table 5.1 Clothing adjustment factors exist for various types of clothing.

Clothing	Clothing adjustment factors (°C-WBGT)	
	Previous	2006
Work clothing (baseline)	0	0
Cloth coveralls	3.5	0
Double-layer cloth clothing	5	3
Spunbound melt-blown synthetic (SMS) coveralls	-	0.5
Polyolefin coveralls	-	1
Limited-use vapor-barrier coveralls	-	11

Adapted from Bernard TE, Threshold Limit Values for Physical Agents Committee, ACGIH [2014].

Table 5.1 above is copied from the following publication; see page 19. NIOSH [2016]. *NIOSH criteria for a recommended standard: occupational exposure to heat and hot environments*. By Jacklitsch B, Williams WJ, Musolin K, Coca A, Kim J-H, Turner N. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication 2016-106.

**437-004-1140 Lighting**

- (1) General lighting.
  - (a) Provide adequate general and local lighting in rooms, buildings and work areas.
  - (b) Methods for determining the adequacy and effectiveness of lighting include:
    - (A) Measure the quantity of light against requirements in the American National Standard ANSI A11.1-1965, "American Standard Practice for Industrial Lighting."
    - (B) The quality of light as to freedom from glare and correct direction, diffusion and distribution.

Statutory Authority: ORS 654.025(2) and 656.726(4)  
Statutes Implemented: ORS 654.001 through 654.295  
History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998

**437-004-1150 Safety Colors for Marking Physical Hazards**

- (1) Color identification.
  - (a) Red. Use red as the basic color to identify:
    - (A) Danger. Safety cans or other portable containers of flammable liquids must be red with highly contrasting markings. Provide red lights at barricades and at temporary obstructions. The main or background color of danger signs must be red.
    - (B) Stop. Emergency stop bars on hazardous machines must be red. Use red for emergency stop buttons or emergency electrical switches with contrasting letters or other markings.
  - (b) Yellow. Yellow is the basic color to signal caution and to mark physical hazards such as: Striking against, stumbling, falling, tripping, and "caught between."

Statutory Authority: ORS 654.025(2) and 656.726(4)  
Statutes Implemented: ORS 654.001 through 654.295  
History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998

**437-004-1180 Accident Prevention Signs**

- (1) Scope. This section applies to the design, application and use of signs or symbols (as included in paragraphs (3) through (5) below) to warn of specific hazards. This does not apply to bulletin boards or safety posters.
- (2) Definitions.

**Sign** – A surface marked to warn people of hazards, or to give safety instructions. Excluded are news releases, safety posters and bulletins.

- (3) Classification of signs by use.
  - (a) Danger signs.
    - (A) Use signs of uniform design to warn of specific dangers and radiation hazards.
    - (B) Instruct all employees that danger signs warn of immediate danger and that special precautions are necessary.
  - (b) Caution signs.
    - (A) Use caution signs only to warn of hazards or to caution against unsafe practices.
    - (B) Instruct all employees that caution signs warn of a hazard against which they should take precautions.
  - (c) Safety instruction signs. Use safety instruction signs for general instructions and suggestions about safety.
- (4) Sign design.
  - (a) Design features. Use signs with rounded or blunt corners and no sharp edges, burrs, splinters or other sharp projections. Place the ends or heads of bolts or other fastening devices so that they are not hazardous.
  - (b) Danger signs. The color of the background must be red.
  - (c) Caution signs. The color of the background must be yellow and the panel, black with yellow letters. Use black letters against the yellow background.
  - (d) Safety instruction signs. Use white for the background and make the panel green with white letters. Any letters used against the white background must be black.
  - (e) Slow-moving vehicle emblem. This emblem (see Figure 7) has a fluorescent yellow-orange triangle with a dark red reflective border. The reflective border defines the shape of the fluorescent color in daylight and creates a hollow red triangle in the path of motor vehicle headlights at night.
    - (A) Use this emblem only on vehicles that by design move at 25 mph or less on public roads. Do not use it as a clearance marker for wide machinery to replace required lighting or marking of slow-moving vehicles. The material, location, mounting, etc., of the emblem must conform to the American Society of Agricultural Engineers Emblem for Identifying Slow-Moving Vehicles, ASAE R276, 1967, or ASAE S276.2 (ANSI B114.1-1971).



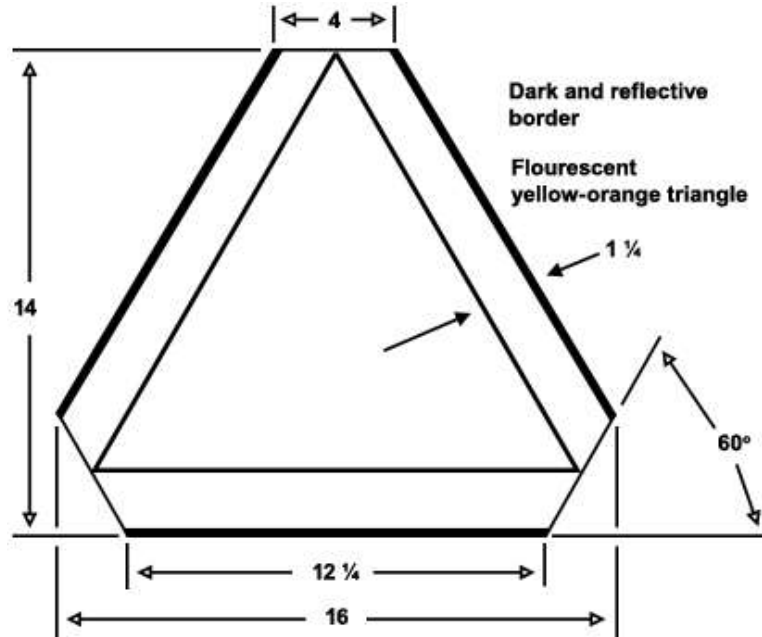


Figure 1 Slow-Moving Vehicle Emblem

- (5) Sign wordings.
- Nature of wording. Use wording on signs that is easily understandable.
  - Biological hazard signs. Use the biological hazard warning sign to warn of the actual or potential presence of a biohazard. Use it to mark equipment, containers, rooms, materials, experimental animals or combinations of them, that contain or are contaminated with viable hazardous agents. For this subparagraph the term “biological hazard,” or “biohazard,” means only those infectious agents presenting a risk or potential risk to the well-being of humans.

**Note:** All dimensions are in inches.

Statutory Authority: ORS 654.025(2) and 656.726(4)  
 Statutes Implemented: ORS 654.001 through 654.295  
 History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998

## 437-004-1250 Confined and Hazardous Spaces

- (1) Definitions.

**Competent person** is somebody who can identify existing and predictable hazards and take measures to eliminate them.

**Confined space** is a space that:

is large enough and so configured that an employee can bodily enter and work;  
and

has limited or restricted entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits may have limited entry); and

is not designed for continuous employee occupancy.

**Engulfment** is the covering of a person by a liquid or finely divided (flowable) solid substance that when inhaled causes death or that can exert enough force on the body to cause death by strangulation, constriction or crushing.

**Entry** is passing through an opening into a hazardous or confined space. Entry includes work in the space and occurs when any part of the entrant's body breaks the plane of an opening into the space in a way that creates a hazard.

**IDLH Atmospheres.** Atmospheres immediately dangerous to life or health (IDLH) are those with less than 19.5 percent oxygen by volume, or which because of the high toxicity of the contaminant, would endanger the life of a person breathing them for even a short period of time.

**Oxygen deficient** is an atmosphere with less than 19.5 percent oxygen by volume.

- (2) Fuel bins.
  - (a) Fuel bins must have adequate exits and all necessary devices to provide safety for employees who enter them.
  - (b) There may be sentry stations or tunnels near the bottom conveyor for employees to use to stoke down congested fuel through openings. Safely built pneumatic bottoms, mechanical agitators or scrapers and similar devices are acceptable.
- (3) Entering confined spaces.
  - (a) Test first. Always test the atmosphere in a confined space before an employee places any part of their body into it. Following the instructions below, test first for oxygen, then flammable atmosphere then toxic atmosphere.
  - (b) Entry. No person may enter or work in any confined space with an atmosphere immediately dangerous to life or health (IDLH), except under the following conditions:
    - (A) They must wear a supplied air or self-contained air breathing apparatus;
    - (B) They must wear a safety belt with lifeline attached, where practical. Another person, equipped as required in subsection (3)(b)(A) above and with safety belt and lifeline attached, must be at the opening with adequate help available to remove the person if necessary (see (5), Rescue below);

- (C) Failure of the person within the enclosure to respond to agreed upon signals requires immediate rescue action by a person or persons equipped as required in subsections (3)(b)(A) and (B) above;
  - (D) Air supplied to hose masks and positive pressure air helmets must be free from harmful dusts, fumes, mists, vapors, or gases to the extent that breathing it does not constitute harmful exposure. Position the air intake to the blower fan or compressor to prevent contamination of the air by carbon monoxide or other hazardous materials or gases;
  - (E) Supplied air respiratory equipment must have an automatic pressure relief valve, and connect through a pressure reduction valve in the supply line. Maximum allowable pressure, unless otherwise specifically approved, is 25 pounds per square inch;
  - (F) To assure safety when using positive-pressure air respiratory equipment, a minimum volume of air delivered to the user must be at least 4 cubic feet of air per minute for a face mask and 6 cubic feet of air per minute for hoods or helmets.
- (c) Oxygen deficient atmospheres. The atmosphere in a sealed or unventilated confined space is considered immediately dangerous to life or health. Nobody may enter such space unless:
- (A) All requirements for safety equipment and procedures in (3)(b) above are met; or
  - (B) A competent person tests the atmosphere with an oxygen indicator or other suitable device immediately before entry to ensure that it contains enough oxygen to sustain life; or
  - (C) Until mechanical ventilation provides at least one complete change of uncontaminated air immediately before entry and continues while anybody is inside the enclosure. A safety watcher meeting the requirements in (3)(b) above must be at the entry.
- (d) Toxic atmospheres. Nobody may enter any sealed or unventilated tank or other confined space that contains or has contained toxic materials or gases, unless:
- (A) All requirements for safety equipment and safety procedures in (3)(b) above are met, or a competent person tests the atmosphere with an appropriate instrument or method and finds it to have contaminants below the threshold limit values of the particular material or gas.

- (B) If the atmosphere has concentrations of hazardous contaminants not immediately dangerous to life or health, but above the threshold limit values for the toxic material, the person entering the space must wear respiratory protective equipment approved by the National Institute of Occupational Safety and Health, or recommended by the U.S. Department of Agriculture for the exposure.
- (e) Flammable or explosive atmospheres. The atmosphere in any sealed or unventilated tank or other confined space and that contains or has contained combustible or flammable materials or gases is an atmosphere immediately dangerous to life or health.
  - (A) Nobody may enter such space unless all requirements for safety equipment and safety procedures in (3)(b) above are met or atmosphere tests by a competent person using an appropriate instrument or method shows no flammable or explosive atmosphere is present.
  - (B) If the atmosphere contains flammable or explosive vapors at or above 20 percent of their lower explosive limit, ventilate the space enough to bring the level below 20 percent of the lower explosive limit. Otherwise only persons meeting the requirements of (c) above may enter the enclosure for emergency work, including preparatory work or work to set up equipment to eliminate the gas.
- (f) Ventilation. Natural and/or mechanical ventilation must maintain the atmosphere within the limits permissible for explosive or toxic materials and gases while employees are in the space.
- (g) Residues and other sources. When there could be a release of explosive or toxic materials from residues or other sources in a confined space, there must be additional testing as necessary to assure the atmosphere has not become immediately dangerous to life or health. If such conditions arise, immediately leave the contaminated space until the atmosphere is safe for persons wearing respiratory protective equipment.
- (h) Physical hazards. Do not allow employees to enter confined spaces that contains physical hazards, until you comply with OAR 437-004-1275.
- (i) Engulfment. Do not allow employees to enter confined spaces where there is a hazard from engulfment by collapsing material.
- (j) Lifeline and attendant. When entering confined spaces that have loose material (such as chips, sand, grain, gravel, sawdust, etc.) you must wear a safety belt with lifeline. There must be an attendant for the lifeline.

- (k) Lockout/tagout. Follow the procedures of OAR 437-004-1275, for intake pipelines that convey hazardous substances into confined spaces before workers enter. Blinds, if used, must clearly show whether the line is open or closed. Close, lock and attach warning tags to valves in such lines nearest the containers. Blinding or lockout of cold water and air lines is not necessary if they have positive control valves near the container and you lock, close and tag the valves.
- (4) Training.
  - (a) Train all workers before they do anything covered by this section. Retrain workers when there are changes in their duties or the spaces related to this section.
  - (b) Training must cover all hazards associated with the employer's confined and hazardous spaces.
  - (c) Training must cover this standard and all duties associated with it.
  - (d) Keep written documentation of all training until it is superseded by new training.
- (5) Rescue.
  - (a) These requirements apply to employers who have employees enter confined spaces to rescue people.
    - (A) You must give each rescuer the personal protective equipment and rescue equipment necessary to make rescues from hazardous spaces. You must also provide training on the proper use of that equipment.
    - (B) Train each rescuer in basic first aid and in cardiopulmonary resuscitation (CPR). At least one rescuer with current certification in first aid and in CPR must be available.
  - (b) When employers arrange to have persons other than their own employees do confined space rescue, the employer must:
    - (A) Inform the rescue service of the hazards they may confront during the rescue at the host employer's facility, and
    - (B) Provide the rescue service with access to all confined spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.
  - (c) To accomplish non-entry rescue, attach the other end of the retrieval line to a mechanical device or fixed point outside the hazardous space in a way that rescue can begin as soon as the rescuer becomes aware that rescue is necessary.

Statutory Authority: ORS 654.025(2) and 656.726(4)  
Statutes Implemented: ORS 654.001 through 654.295  
History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998

**437-004-1260 Manure Lagoons, Storage Ponds, Vats, Pits and Separators**

- (1) Scope. This applies to facilities not covered by confined space rules. (Examples include pole buildings used to store compost material or manure lagoons and separators.)
- (2) General.
  - (a) Do not enter any vat, pit, separator or other hazardous area where the atmosphere may be immediately dangerous to life unless:
    - (A) Tests by a competent person, immediately before entry, prove it free of toxic gases and with enough oxygen to sustain life; or
    - (B) Mechanical or natural ventilation provides at least one complete change of uncontaminated air immediately before entry and continues during enclosure occupancy; or,
    - (C) The person entering the area is using a properly functioning supplied air or self-contained breathing apparatus, and is closely supervised by a safety watcher with similar equipment, at the entrance. They must have adequate help to remove the person if necessary.
  - (b) Vats and pits that have hazardous materials, manure or that are more than 4 feet deep, must meet one of the following requirements:
    - (A) A cover or grating must be in place and strong enough to safely support imposed loads; or
    - (B) The edges must extend at least 42 inches above the adjacent floor level; or,
    - (C) There is a standard guardrail.
    - (D) Where vehicles operate near vats or pits the railing must be strong enough to keep them out, or there must be a curb or shear rail that keeps the vehicle out.
  - (c) Manure lagoons or earthen manure storage ponds must have:
    - (A) Curbs, shear rails or other barriers where vehicles or equipment operate near enough to drive or roll into the lagoon.
    - (B) Standard guardrails or other protection where employees work over the contents or near enough to the edge to fall into the lagoon.
    - (C) Cables or chains that connect a vehicle to an adequate anchorage and are short enough to prevent the vehicle from rolling into the lagoon are acceptable.

Statutory Authority: ORS 654.025(2) and 656.726(4)

Statutes Implemented: ORS 654.001 through 654.295

History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998

**437-004-1275 The Control of Hazardous Energy (Lockout/Tagout)**

- (1) Scope. This standard covers work on machines, vehicles and equipment when the unexpected energizing or starting of them, or release of stored energy could injure employees.
- (2) Application.
  - (a) This standard applies to the control of energy during servicing and/or maintenance of machines and equipment.
  - (b) It does not cover normal production operations. It covers servicing and/or maintenance that takes place during normal production operations only if:
    - (A) An employee must remove or bypass a guard or other safety device; or
    - (B) An employee must place any part of the body where they do work on the material being processed (point of operation) or where a danger zone exists.
  - (c) It does not cover routine, repetitive minor tool changes, adjustments and other minor servicing activities, done during normal operations, if they are necessary to the use of the equipment and if the workers use alternative methods that provide effective protection.
  - (d) This standard does not apply to work on electric powered equipment, when unplugging it would control the hazard and the employee doing the work controls the plug totally. It also does not apply to work on vehicles when the person doing the work has the ignition key under their exclusive control and there are no other sources of hazardous energy that could be released without the key.
- (3) Program requirement. Employers must establish an energy control program and use its procedures for putting appropriate lockout or tagout devices on energy isolating devices. They must disable machines or equipment to prevent injury to employees.
- (4) Definitions.

**Affected employee.** One who operates a machine or equipment during service or maintenance under lockout or tagout. Also, those who work near where covered servicing or maintenance is done.

**Authorized person.** One who locks out or tags out machines or equipment to service or maintain them. An affected employee becomes an authorized person when they do service or maintenance covered here.

**Energized.** Connected to an energy source or containing residual or stored energy.

**Energy isolating device.** A mechanical device that physically prevents the transmission or release of energy. Examples: A manual circuit breaker; a switch; a manual switch that disconnects the conductors of a circuit from all ungrounded supply conductors and where employees can operate no pole independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

**Energy source.** Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravity or other energy.

**Lockable.** An energy isolating device with its own lock or with a hasp or other way to attach a lock. Other energy isolating devices are lockable if they can be locked without being dismantled, rebuilt or replaced or permanently altering their energy control capability.

**Lockout.** The use of a lockout device on an energy isolating device, according to an established procedure to ensure that the controlled equipment is not operable until an authorized person removes the lockout device.

**Lockout device.** Something that uses a positive means such as a lock, to hold an energy isolating device in a safe position. Included are blank flanges and bolted slip blinds.

**Normal operations.** A machine or equipment doing its intended function.

**Servicing and/or maintenance.** Constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. This includes removing jams, lubrication or cleaning of machines or equipment and making adjustments or tool changes, where the process may expose the employee to the unexpected energizing or starting of the equipment or release of hazardous energy.

**Setting up.** Any work done to prepare a machine or equipment for operation.

**Tagout.** The placement of a tagout device on an energy isolating device, according to an established procedure, warning employees not to operate the energy isolating device and the equipment being controlled until an authorized person removes the tagout device.

**Tagout device.** A prominent warning device, such as a tag and a secure, sturdy means of attachment to an energy isolating device according an established procedure. The tag must warn employees not to operate the energy isolating device and the equipment being controlled until an authorized person removes the tagout device.

(5) General.



- (a) Energy control program. Before doing any servicing or maintenance the employer must have a written energy control program with specific procedures, employee training and periodic reviews. It must ensure isolation of the equipment from the energy source and make it inoperative in a way to prevent injury.
- (b) Lockout/tagout.
  - (A) If an energy isolating device is not lockable, the energy control program must use a tagout system that provides as much employee protection as is possible.
  - (B) If the energy isolating device is lockable, the energy control program must use lockout.
  - (C) Major repair, renovation or modification of a machine or equipment or installation of new machines or equipment requires new energy isolating device(s) to be lockable.
- (c) Employee protection.
  - (A) When using a tagout device on a lockable energy isolating device, attach the tagout device where you would have put the lockout device.
  - (B) Full compliance with all parts of this standard related to tagout is necessary to assure the highest safety levels. Additional steps that help provide high employee protection include the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device or the removal of a valve handle.
- (d) Energy control procedure.
  - (A) Develop, document and use procedures for the control of potentially hazardous energy when employees are doing work covered by this section.

**Note:** Documenting the required procedure for a particular machine or equipment is not necessary when all of the following are true:

The machine or equipment has no potential for stored or residual dangerous energy or accumulation of stored dangerous energy after shut down;

The machine or equipment has an easily identified and isolated single energy source;

The isolation and locking out of that energy source will eliminate all energy-related hazards;

The machine or equipment is isolated from that energy source and locked out during servicing or maintenance;

A single lockout device will achieve a locked-out condition;

The lockout device is under the exclusive control of the authorized person doing the servicing or maintenance;

The servicing or maintenance does not create hazards for other employees; and  
No accidents have happened that involved the unexpected activation or energizing of the machine or equipment during servicing or maintenance done under this exception.

- (B) The procedures must specifically outline the scope, purpose, authorization, rules and methods that are mandatory for the control of hazardous energy. They must also include a way to enforce compliance including, but not limited to, the following:
- (i) A specific statement of the intended use of the procedure;
  - (ii) Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy;
  - (iii) Specific procedural steps for the placement, removal and transfer of lockout or tagout devices and the responsibility for them; and
  - (iv) Specific requirements for testing a machine or equipment to verify the effectiveness of lockout devices, tagout devices and other energy control measures.
- (e) Protective materials and hardware.
- (A) Each employee's lock must have either a key or combination that is unique to that device.
- (B) The employer must provide the necessary locks and/or hardware to do all required lockout/tagout functions.
- (C) Individually identify each lockout and tagout device. They must be the only devices used for controlling energy. Do not use devices meant for the lockout program for other purposes. They must meet the following requirements:
- (i) Durable.
    - (I) Lockout and tagout devices must withstand their environment.
    - (II) Make tagout devices so that exposure to weather conditions or wet and damp locations will not cause them to deteriorate or the message on them to become illegible.
    - (III) Tags must not deteriorate in corrosive environments such as where you handle or store acid and alkali chemicals.
  - (ii) Standardized. Use lockout and tagout devices whose appearance is uniform within the facility and easily recognized.
  - (iii) Substantial.

- (I) Lockout devices. Lockout devices must be sturdy enough to prevent removal without the use of excessive force or unusual methods or tools.
      - (II) Tagout devices. Tagout devices and their means of attachment, must be sturdy enough to prevent inadvertent or accidental removal. The attachment means must be single use and self-locking.
    - (iv) Identifiable. Lockout and tagout devices must show the identity of the employee who applied them.
  - (D) On energized machines or equipment, tagout devices must warn against hazardous conditions and must include a phrase like: Do Not Start, Do Not Open, Do Not Close, Do Not Energize, Do Not Operate.
- (f) Annual Review.
- (A) Do a review of the energy control program at least annually to ensure that it meets the requirements of this standard and employees are following it.
    - (i) An authorized person must do the review.
    - (ii) Correct problems found during the review.
    - (iii) For a lockout program, the review must include a personal review, between the inspector and each authorized person, of that employee's responsibilities under the program.
    - (iv) For a tagout program, the review must include a personal review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the program.
  - (B) Document these reviews in writing with the identity of the machine or equipment covered by the program, the date of the review, the employees included in the review, and the person doing it.
- (g) Training and communication.
- (A) Provide general training that includes the following:
    - (i) Train authorized persons in the recognition of sources of hazardous energy, the type and amount of energy found in their workplace and the methods of energy isolation and control.
    - (ii) Instruct affected employees in the purpose and use of the energy control program.

- (iii) Instruct other employees who work or may work where there may be energy control procedures, about those procedures and about the prohibition against attempts to restart or energize locked out or tagged out machines or equipment.
  - (B) For tagout systems, provide the following additional training:
    - (i) Locks are physical restraints while tags are only warning devices that provide less protection than locks.
    - (ii) Do not remove a tag attached to an energy isolating means, without authorization of the authorized person responsible for it. Never bypass, ignore or otherwise defeat a tagout device.
    - (iii) Tags must be legible and understandable by all employees whose work operations are or may be in the area.
    - (iv) Tags may cause a false sense of security. Understanding their meaning must be part of the overall energy control program.
    - (v) Securely attach tags to energy isolating devices so that they cannot be inadvertently or accidentally detached.
  - (C) Employee retraining.
    - (i) Retrain employees when a change in their job assignment, a change in machines, equipment or processes present a new hazard or when the program changes.
    - (ii) Retrain employees when a review shows or the employer has reason to believe, that there are problems in the employees' knowledge or use of the program.
  - (D) Document the employee training in writing with each employee's name and date(s) of training.
  - (h) Energy isolation. Authorized persons doing the servicing or maintenance must do the lockout or tagout.
  - (i) Notification of employees. Notify affected employees of the application and removal of lockout or tagout devices before applying the controls and after removing them from the machine or equipment.
- (6) Application of control. The established procedures for the application of energy control (the lockout or tagout program) must cover the following points in the following sequence:
  - (a) Preparation for shutdown. Before an authorized or affected employee turns off a machine or equipment, they must know the type and amount of the involved energy, the hazards of the energy and the method to control it.

- (b) Machine or equipment shutdown. Turn off the machine or equipment using the procedures established for it. Do an orderly shutdown to avoid new or increased hazards because of the equipment stoppage.
  - (c) Machine or equipment isolation. All energy isolating devices must be physically placed and used in ways that isolate the machine or equipment from the energy source(s).
  - (d) Lockout or tagout device application.
    - (A) Only authorized persons are to connect lockout or tagout devices to each energy isolating device.
    - (B) Connect lockout devices in a way that will hold the energy isolating devices in a “safe” or “off” position.
    - (C) Connect tagout devices in a way that will positively prevent operation or movement of energy isolating devices from the “safe” or “off” position.
      - (i) Directly connect the tag to the energy isolating device, otherwise it must be as close to the device as safely possible and obvious to anyone attempting to operate the device.
  - (e) Stored energy.
    - (A) After the application of lockout or tagout devices, relieve or make safe all potentially hazardous stored or residual energy.
    - (B) If stored energy can again reach a hazardous level, continuously verify its isolation until the servicing or maintenance is done or until the possibility is gone.
  - (f) Verification of isolation. Before starting work on locked out or tagged out machines or equipment, the authorized person must verify that isolation and de-energizing of the machine or equipment has been done.
- (7) Release from lockout or tagout. The authorized person(s) must follow procedures and take actions to guarantee the following before removing lockout or tagout devices and restoring energy to the machine or equipment:
- (a) The machine or equipment. Remove non-essential items from the work area and confirm the return of the machine or equipment to pre-lockout or normal running condition.
  - (b) Employees.
    - (A) Check the work area to ensure that all employees are safe or removed from the area.

- (B) Notify affected employees after removing the lockout or tagout devices but before starting the machine or equipment.
- (c) Lockout or tagout devices removal. Only the employee who applies it can remove a lockout or tagout device. However, when that employee is not available, the employer may direct its removal if specific procedures and training for such removal are a part of the employer's energy control program. The employer must show that the specific procedure is as safe as removal by the authorized person who applied it. The specific procedure must include at least the following:
  - (A) Verification by the employer that the authorized person who applied the device is not at the facility;
  - (B) Attempting to contact the authorized person to inform him or her about the removal of their lockout or tagout device; and
  - (C) Ensuring that the authorized person has this knowledge before he or she resumes work at that facility.
- (8) Additional requirements.
  - (a) Testing or positioning of machines, equipment or components thereof. Follow this sequence of actions when it is necessary to temporarily remove lockout or tagout devices and energize the machine or equipment. This must only be done for testing or positioning the machine, equipment or component of it.
    - (A) Clear the machine or equipment of tools and materials;
    - (B) Remove employees from the machine or equipment area;
    - (C) Remove the lockout or tagout devices;
    - (D) Energize and go on with testing or positioning;
    - (E) Remove energy from all systems and reapply original energy control measures to continue the servicing and/or maintenance.
  - (b) Outside personnel (contractors, etc.).
    - (A) If outside servicing personnel are doing things covered by this standard, the on-site employer and the outside employer must coordinate their respective lockout or tagout procedures.
    - (B) The on-site employer must be certain that its employees understand and comply with the provisions of the outside employer's energy control program.
  - (c) Group lockout or tagout.
    - (A) When a crew, craft, department or other group does service or maintenance, they must use a procedure that gives employees a level of protection equal to that provided by using a personal lockout or tagout device.

- (B) Use group lockout or tagout devices according to OAR 437-004-1275(5)(d) including, but not limited to, these requirements:
- (i) Primary responsibility is with an authorized person for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock);
  - (ii) The authorized person must know the exposure status of individual group members with regard to the lockout or tagout of the machine or equipment, and;
  - (iii) When work involves more than one crew, craft, department, etc., assignment of overall job-associated lockout or tagout control responsibility to an authorized person designated to coordinate affected work forces and ensure continuity of protection, and;
  - (iv) Each authorized person must put a personal lockout or tagout device on the group lockout device, group lockbox, or comparable mechanism when they begin work, and must remove those devices when they stop working on the machine or equipment.
- (d) Shift or personnel changes. Have specific procedures for shift or personnel changes to ensure the continuity of lockout or tagout protection. These must include the orderly transfer of lockout or tagout device protection between leaving and arriving employees. The procedure must minimize exposure to hazards related to the ongoing process.

**Note:** The following Appendix is a non-mandatory guideline to help employers and employees comply with the requirements.

Statutory Authority: ORS 654.025(2) and 656.726(4)  
Statutes Implemented: ORS 654.001 through 654.295  
History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998





## Appendix A – Typical Minimal Lockout Procedure

### General

This simple lockout procedure is to help employers so they meet the requirements of this standard. When the energy isolating devices are not lockable, tagout is OK if the employer complies with the provisions requiring additional training and more rigorous periodic reviews. When using tagout and the energy isolating devices are lockable, the employer must provide full employee protection (see paragraph (5)(c)), additional training and more rigorous periodic inspections. More complex systems may need more comprehensive procedures.

### Lockout Procedure

Lockout procedure for

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(Name of Company for single procedure or identification of equipment if using multiple procedures.)

### Purpose

These are the minimum requirements for the lockout of energy isolating devices when maintenance or servicing is done on machines or equipment. Use it to ensure that the machine or equipment stops and is isolated from all potentially hazardous energy sources. Lock it out before employees work where the unexpected energizing or starting or release of stored energy could cause injury.

### Compliance With This Program

All employees must comply with the restrictions and limitations imposed upon them during the use of lockout. Require authorized persons to do the lockout following this procedure. When employees see a locked out machine or piece of equipment they must not attempt to start, energize or use it.

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Type of compliance enforcement for violation of the above.

### Sequence Of Lockout

- (1) Notify all affected employees about required service or maintenance on a machine or equipment and that it must be shut down and locked out to do the work.

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Name(s)/Job Title(s) of affected employees and how to notify.

- (2) The authorized person must refer to the procedure to identify the type and amount of the energy that the machine or equipment uses, understand the hazards of the energy and know the methods to control it.

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Type(s) and amount(s) of energy, its hazards and the methods to control the energy.

- (3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).

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Type(s) and location(s) of machine or equipment operating controls.

- (4) Deactivate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

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Type(s) and location(s) of energy isolating devices.

- (5) Lock out the energy isolating device(s) with assigned individual lock(s).

- (6) Release or restrain stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems and air, gas, steam, or water pressure, etc.) by methods such as grounding, repositioning, blocking, bleeding down, etc.

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Type(s) of stored energy – methods to release or restrain.

- (7) Disconnect the equipment from the energy source(s) by first removing any exposed employees from the area. Then verify the isolation of the equipment by trying the normal operating control(s) or by testing to make certain that the equipment will run.

**Caution:** Return operating control(s) to neutral or “off” position after verifying the isolation of the equipment.

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Method of verifying the isolation of the equipment.

- (8) The machine or equipment is now locked out.

### Restoring Equipment To Service

When the work is completed and the machine or equipment is ready to return to operation, take the following steps:

- (1) Check the machine or equipment and the immediate area around it and remove any non-essential items. Be sure the machine or equipment is operationally intact.
- (2) Safely position or remove all employees from the area.
- (3) Verify that the controls are in neutral.
- (4) Remove the lockout devices and energize the machine or equipment.  
**Note:** The removal of some forms of blocking may require energizing of the machine beforehand.
- (5) Notify affected employees that the work is complete and the machine or equipment is ready for use.

Statutory Authority: ORS 654.025(2) and 656.726(4)  
Statutes Implemented: ORS 654.001 through 654.295  
History: OSHA 4-1998, adopt filed 08/28/1998, effective 10/01/1998