

# Laws relating to Access to the Legislative Dome

## Contents

<b>Washington State Statutes.....</b>	<b>2</b>
Chapter 19.17 RCW – Washington Industrial and Health Act.....	2
RCW 43.01.090 - Departments to share occupancy costs—Capital projects surcharge.....	2
RCW 43.19.011 - Director—Powers and duties. ....	3
RCW 43.19.125 Capitol buildings and grounds—Custody and control. ....	4
RCW 43.19.450 Supervisor of engineering and architecture—Qualifications—Appointment—Powers and duties—Delegation of authority—"State facilities" defined. ....	4
79.24.590 - Use of private real estate and rights in site declared public use. ....	5
79.24.700 - Findings. ....	5
79.24.710 - Properties identified as "state capitol public and historic facilities." ....	5
79.24.720 - Department of enterprise services' responsibilities. ....	6
<b>Washington Administrative Codes .....</b>	<b>6</b>
WAC 296-24-75011 Railing, toeboards, and cover specifications.....	6
WAC 296-24-567 Employee emergency plans and fire prevention plans.....	8
WAC 296-27-02101 Multiple business establishments.....	9
WAC 296-155-475 - Scope and application. ....	10
WAC 296-155-47501 - Definitions applicable to this part.....	10
WAC 296-155-476 - General requirements.....	11
WAC 296-155-477 - Stairways. ....	11
WAC 296-800-26010 - Protect open-sided floors and platforms.....	14
WAC 296-800-25005 Provide fixed stairs where required.....	14
WAC 296-800-31010 Make sure that exit routes are large enough. ....	15
WAC 296-800-31005 Provide an adequate number of exit routes.....	15
WAC 296-800-22022 Make sure floors are maintained in a safe condition. ....	16
WAC 296-800-26005 Guard or cover floor openings and floor holes. ....	16
WAC 296-800-14005 Develop a formal, written accident prevention program. ....	18
WAC 296-800-16005 Do a hazard assessment for PPE .....	19
Chapter 296-809 WAC Confined Spaces.....	19
<b>National Safety Codes .....</b>	<b>19</b>
National Fire Protection (NFPA) 101 Life Safety Code .....	19
OSHA 29 CFR 1910.36 Design and construction requirements for exit routes.....	19
<b>International Building Codes .....</b>	<b>22</b>
International Building Code Chapter 10 Means of Egress Section 1011 Stairways .....	22

## Washington State Statutes

### Chapter 19.17 RCW – Washington Industrial and Health Act

#### **RCW 43.01.090 - Departments to share occupancy costs—Capital projects surcharge.**

The director of enterprise services may assess a charge or rent against each state board, commission, agency, office, department, activity, or other occupant or user for payment of a proportionate share of costs for occupancy of buildings, structures, or facilities including but not limited to all costs of acquiring, constructing, operating, and maintaining such buildings, structures, or facilities and the repair, remodeling, or furnishing thereof and for the rendering of any service or the furnishing or providing of any supplies, equipment, historic furnishings, or materials.

The director of enterprise services may recover the full costs including appropriate overhead charges of the foregoing by periodic billings as determined by the director including but not limited to transfers upon accounts and advancements into the enterprise services account. Charges related to the rendering of real estate services under RCW 43.82.010 and to the operation and maintenance of public and historic facilities at the state capitol, as defined in RCW 79.24.710, shall be allocated separately from other charges assessed under this section. Rates shall be established by the director of enterprise services after consultation with the director of financial management. The director of enterprise services may allot, provide, or furnish any of such facilities, structures, services, equipment, supplies, or materials to any other public service type occupant or user at such rates or charges as are equitable and reasonably reflect the actual costs of the services provided: PROVIDED, HOWEVER, That the legislature, its duly constituted committees, interim committees and other committees shall be exempted from the provisions of this section.

Upon receipt of such bill, each entity, occupant, or user shall cause a warrant or check in the amount thereof to be drawn in favor of the department of enterprise services which shall be deposited in the state treasury to the credit of the enterprise services account unless the director of financial management has authorized another method for payment of costs.

Beginning July 1, 1995, the director of enterprise services shall assess a capital projects surcharge upon each agency or other user occupying a facility owned and managed by the department of enterprise services in Thurston county, excluding state capitol public and historic facilities, as defined in RCW 79.24.710. The capital projects surcharge does not apply to agencies or users that agree to pay all future repairs, improvements, and renovations to the buildings they occupy and a proportional share, as determined by the office of financial management, of all other campus repairs, installations, improvements, and renovations that provide a benefit to the buildings they occupy or that have an agreement with the department of enterprise services that contains a charge for a similar purpose, including but not limited to RCW 43.01.091, in an amount greater than the capital projects surcharge. Beginning July 1, 2002, the capital projects surcharge does not apply to department of services for the blind vendors who operate cafeteria services in facilities owned and managed by the department of enterprise services; the department shall consider this space to be a common area for purposes of allocating the capital projects surcharge to other building tenants beginning July 1, 2003. The director, after consultation with the director of financial management, shall adopt differential capital project surcharge rates to reflect the differences in facility type and quality. The initial payment structure for this surcharge shall be one dollar per square foot per year. The surcharge shall increase over time to an amount that when combined with the facilities and service charge equals the market rate for similar types of lease space in the area or equals five dollars per square foot per year, whichever is less. The capital projects surcharge shall be in addition to other

charges assessed under this section. Proceeds from the capital projects surcharge shall be deposited into the Thurston county capital facilities account created in RCW [43.19.501](#).

[ [2015 c 225 § 56](#); [2005 c 330 § 5](#); [2002 c 162 § 1](#); [1998 c 105 § 5](#); [1994 c 219 § 16](#); [1991 sp.s. c 31 § 10](#); [1979 c 151 § 81](#); [1973 1st ex.s. c 82 § 1](#); [1971 ex.s. c 159 § 1](#); [1965 c 8 § 43.01.090](#). Prior: (i) [1951 c 131 § 1](#); [1941 c 228 § 1](#); Rem. Supp. 1941 § 10964-30. (ii) [1951 c 131 § 1](#); [1941 c 228 § 2](#); Rem. Supp. 1941 § 10964-31.]

**NOTES:**

**Effective date—1998 c 105:** See note following RCW [43.19.025](#).

**Findings—Purpose—1994 c 219:** "The legislature finds that there is inequitable distribution among state programs of capital costs associated with maintaining and rehabilitating state facilities. The legislature finds that there are insufficient available resources to support even minor capital improvements other than debt financing. The legislature further finds that little attention is focused on efficient facility management because in many cases capital costs are not factored into the ongoing process of allocating state resources. The purpose of sections 16 through 18, chapter 219, Laws of 1994 is to create a mechanism to distribute capital costs among the agencies and programs occupying facilities owned and managed by the \*department of general administration in Thurston county that will foster increased accountability for facility decisions and more efficient use of the facilities." [ [1994 c 219 § 15](#).]

**\*Reviser's note:** The department of general administration was renamed the department of enterprise services by [2011 1st sp.s. c 43 § 107](#).

**Finding—1994 c 219:** See note following RCW [43.88.030](#).

**Effective date—1973 1st ex.s. c 82:** "This 1973 amendatory act is necessary for the immediate preservation of the public peace, health and safety, the support of the state government and its existing public institutions, and shall take effect July 1, 1973." [ [1973 1st ex.s. c 82 § 2](#).]

*Agricultural commodity commissions exempt: RCW [15.04.200](#).*

*Enterprise services account: RCW [43.19.500](#).*

*Housing for state offices, departments, and institutions: Chapter [43.82](#) RCW.*

**RCW [43.19.011](#) - Director—Powers and duties.**

(1) The director of enterprise services shall supervise and administer the activities of the department of enterprise services and shall advise the governor and the legislature with respect to matters under the jurisdiction of the department.

(2) In addition to other powers and duties granted to the director, the director shall have the following powers and duties:

(a) Enter into contracts on behalf of the state to carry out the purposes of this chapter;

(b) Accept and expend gifts and grants that are related to the purposes of this chapter, whether such grants be of federal or other funds;

(c) Appoint deputy and assistant directors and such other special assistants as may be needed to administer the department. These employees are exempt from the provisions of chapter [41.06](#) RCW;

(d) Adopt rules in accordance with chapter [34.05](#) RCW and perform all other functions necessary and proper to carry out the purposes of this chapter;

(e) Delegate powers, duties, and functions as the director deems necessary for efficient administration, but the director shall be responsible for the official acts of the officers and employees of the department;

(f) Apply for grants from public and private entities, and receive and administer any grant funding received for the purpose and intent of this chapter; and

(g) Perform other duties as are necessary and consistent with law.

(3) The director may establish additional advisory groups as may be necessary to carry out the purposes of this chapter.

[ [2011 1st sp.s. c 43 § 201](#); [1999 c 229 § 2](#).]

**NOTES:**

**Effective date—Purpose—2011 1st sp.s. c 43:** See notes following RCW [43.19.003](#).

**RCW 43.19.125 Capitol buildings and grounds—Custody and control.**

(1) The director of enterprise services shall have custody and control of the capitol buildings and grounds, supervise and direct proper care, heating, lighting and repairing thereof, and designate rooms in the capitol buildings to be occupied by various state officials.

(2) During the 2007-2009 biennium, responsibility for development of the "Wheeler block" on the capitol campus as authorized in section 6013, chapter 520, Laws of 2007 shall be transferred from the department of general administration to the department of information services.

[ [2011 1st sp.s. c 43 § 204](#); [2007 c 520 § 6014](#); [1965 c 8 § 43.19.125](#). Prior: [1959 c 301 § 2](#); [1955 c 285 § 9](#).]

**NOTES:**

**Effective date—Purpose—2011 1st sp.s. c 43:** See notes following RCW 43.19.003.

**Part headings not law—2007 c 520:** "Part headings in this act are not any part of the law." [ [2007 c 520 § 6055](#).]

**Severability—2007 c 520:** "If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected." [ [2007 c 520 § 6056](#).]

**Effective dates—2007 c 520:** "This act is necessary for the immediate preservation of the public peace, health, or safety, or support of the state government and its existing public institutions, and takes effect immediately [May 15, 2007], except for section 6035 of this act which takes effect July 1, 2007, and section 6037 of this act which takes effect June 30, 2011." [ [2007 c 520 § 6057](#).]

Capitol campus design advisory committee: RCW 43.34.080.

East capitol site, acquisition and development: RCW 79.24.500 through 79.24.600.

Housing for state offices: Chapter 43.82 RCW.

Parking facilities and traffic on capitol grounds: RCW 79.24.300 through 79.24.320, 46.08.150.

Public buildings, earthquake standards for construction: Chapter [70.86](#) RCW.

**RCW 43.19.450 Supervisor of engineering and architecture—Qualifications—Appointment—Powers and duties—Delegation of authority—"State facilities" defined.**

The director shall appoint a supervisor of engineering and architecture.

A person is not eligible for appointment as supervisor of engineering and architecture unless he or she is licensed to practice the profession of engineering or the profession of architecture in the state of Washington and for the last five years prior to his or her appointment has been licensed to practice the profession of engineering or the profession of architecture.

As used in this section, "state facilities" includes all state buildings, related structures, and appurtenances constructed for any elected state officials, institutions, departments, boards, commissions, colleges, community colleges, except the state universities, The Evergreen State College and regional universities. "State facilities" does not include facilities owned by or used for operational purposes and constructed for the department of transportation, department of fish and wildlife, department of natural resources, or state parks and recreation commission.

The director or the director's designee shall:

(1) Prepare cost estimates and technical information to accompany the capital budget and prepare or contract for plans and specifications for new construction and major repairs and alterations to state facilities.

(2) Contract for professional architectural, engineering, and related services for the design of new state facilities and major repair or alterations to existing state facilities.

(3) Provide contract administration for new construction and the repair and alteration of existing state facilities.

(4) In accordance with the public works laws, contract on behalf of the state for the new construction and major repair or alteration of state facilities.

The director may delegate any and all of the functions under subsections (1) through (4) of this section to any agency upon such terms and conditions as considered advisable.

[ 2011 1st sp.s. c 43 § 222; 1994 c 264 § 15; 1988 c 36 § 14; 1982 c 98 § 3; 1981 c 136 § 63; 1979 c 141 § 45; 1965 c 8 § 43.19.450. Prior: 1959 c 301 § 4.]

NOTES:

Effective date—Purpose—2011 1st sp.s. c 43: See notes following RCW 43.19.003.

Effective date—1981 c 136: See RCW 72.09.900.

### **79.24.590 - Use of private real estate and rights in site declared public use.**

The use of the private real estate, rights, and interests in the east capitol site is hereby declared to be a public use.

[ [1961 c 167 § 10.](#)]

### **79.24.700 - Findings.**

The legislature finds that the historic facilities of the Washington state capitol are the most important public facilities in the state. They are a source of beauty and pride, a resource for celebrating our heritage and democratic ideals, and an exceptional educational resource. The public and historic facilities of the state capitol campus should be managed and maintained to the highest standards of excellence, model the best of historic preservation practice, and maximize opportunities for public access and enjoyment. The purpose of chapter 330, Laws of 2005 is to provide authority and direction for the care and stewardship of the public and historic facilities of the state capitol, to facilitate public access, use, and enjoyment of these assets, and to carefully preserve them for the benefit of future generations.

[ [2005 c 330 § 1.](#)]

### **79.24.710 - Properties identified as "state capitol public and historic facilities."**

For the purposes of RCW [79.24.720](#), [79.24.730](#), [43.01.090](#), [43.19.500](#), and [79.24.087](#), "state capitol public and historic facilities" includes:

(1) The east, west and north capitol campus grounds, Sylvester park, Heritage park, Marathon park, Centennial park, the Deschutes river basin commonly known as Capitol lake, the interpretive center, Deschutes parkway, and the landscape, memorials, artwork, fountains, streets, sidewalks, lighting, and infrastructure in each of these areas not including state-owned aquatic lands in these areas managed by the department of natural resources under RCW [79.105.010](#);

(2) The public spaces and the historic interior and exterior elements of the following buildings: The visitor center, the Governor's mansion, the legislative building, the John L. O'Brien building, the Cherberg building, the Newhouse building, the Pritchard building, the temple of justice, the insurance building, the Dolliver building, capitol court, and the old capitol buildings, including the historic state-owned furnishings and works of art commissioned for or original to these buildings; and

(3) Other facilities or elements of facilities as determined by the state capitol committee, in consultation with the department of enterprise services.

[ [2015 c 225 § 123](#); [2005 c 330 § 2](#).]

#### **79.24.720 - Department of enterprise services' responsibilities.**

The department of enterprise services is responsible for the stewardship, preservation, operation, and maintenance of the public and historic facilities of the state capitol, subject to the policy direction of the state capitol committee and the guidance of the capitol campus design advisory committee. In administering this responsibility, the department shall:

- (1) Apply the United States secretary of the interior's standards for the treatment of historic properties;
- (2) Seek to balance the functional requirements of state government operations with public access and the long-term preservation needs of the properties themselves; and
- (3) Consult with the capitol furnishings preservation committee, the state historic preservation officer, the state arts commission, and the state facilities accessibility advisory committee in fulfilling the responsibilities provided for in this section.

[ [2015 c 225 § 124](#); [2005 c 330 § 3](#).]

## Washington Administrative Codes

#### **WAC 296-24-75011 Railing, toeboards, and cover specifications.**

- (1) You must ensure that a standard railing consists of top rail, intermediate rail, and posts, and has a vertical height of forty-two inches, plus or minus three inches, from upper surface of top rail to floor, platform, runway, or ramp level and:
  - (a) The top rail must be smooth-surfaced throughout the length of the railing.
  - (b) The intermediate rail must be approximately halfway between the top rail and the floor, platform, runway, or ramp.
  - (c) The ends of the rails must not overhang the terminal posts except where such overhang does not constitute a projection hazard.
  - (d) Guardrails with heights greater than 42 inches are permissible provided the extra height does not create a dangerous situation for employees and that additional mid-rails were installed so that openings beneath the top rail would not permit the passage of a 19-inch or larger spherical object.
- (2) You must ensure that a stair railing is of construction similar to a standard railing but the vertical height is not more than 34 inches nor less than 30 inches from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.
- (3) Minimum requirements for standard railings under various types of construction are specified in this subsection. Dimensions specified are based on the U.S. Department of Agriculture Wood Handbook, No. 72, 1955 (No. 1 (S4S) Southern Yellow Pine (Modulus of Rupture 7,400 p.s.i.)) for wood; ANSI G 41.5-1970, American National Standard Specifications for Structural Steel, for structural steel; and ANSI B 125.1-1970, American National Standard Specifications for Welded and Seamless Steel Pipe, for pipe.
  - (a) For wood railings, the posts must be of at least 2-inch by 4-inch nominal stock spaced not to exceed 6 feet; the top and intermediate rails must be of at least 2-inch by 4-inch nominal stock. If top rail is made of two right-angle pieces of 1-inch by 4-inch stock, posts may be spaced on 8-foot centers, with 2-inch by 4-inch intermediate rail.
  - (b) For pipe railings, posts and top and intermediate railings must be at least 1 1/2 inches nominal diameter (outside diameter) with posts spaced not more than 8 feet on centers.
  - (c) For structural steel railings, posts and top and intermediate rails must be of 2-inch by 2-inch by 3/8-inch angles or other metal shapes of equivalent bending strength with posts spaced not more than 8 feet on centers.

(d) The anchoring of posts and framing of members for railings of all types shall be of such construction that the completed structure must be capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail.

(e) Other types, sizes, and arrangements of railing construction are acceptable provided they meet the following conditions:

(i) A smooth-surfaced top rail at a height above floor, platform, runway, or ramp level of from 36 to 42 inches nominal;

(ii) A strength to withstand at least the minimum requirement of 200 pounds top rail pressure;

(iii) Protection between top rail and floor, platform, runway, ramp, or stair treads, equivalent at least to that afforded by a standard intermediate rail;

(iv) Elimination of overhang of rail ends unless such overhang does not constitute a hazard; such as, baluster railings, scrollwork railings, paneled railings.

(4) You must ensure that a standard toeboard is a minimum of 4 inches nominal in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It must be securely fastened in place and with not more than 1/4-inch clearance above floor level. It may be made of any substantial material either solid or with openings not over one inch in greatest dimension.

Where material is piled to such height that a standard toeboard does not provide protection, paneling from floor to intermediate rail, or to top rail must be provided.

(5) You must ensure that a handrail consists of a lengthwise member mounted directly on a wall or partition by means of brackets attached to the lower side of the handrail so as to offer no obstruction to a smooth surface along the top and both sides of the handrail. The handrail must be of rounded or other section that will furnish an adequate handhold for anyone grasping it to avoid falling. The ends of the handrail should be turned in to the supporting wall or otherwise arranged so as not to constitute a projection hazard.

(a) The height of handrails must be not more than 34 inches nor less than 30 inches from upper surface of handrail to surface of tread in line with face of riser or to surface of ramp.

(b) The size of handrails must be: When of hardwood, at least 2 inches in diameter; when of metal pipe, at least 1 1/2 inches in diameter. The length of brackets must be such as will give a clearance between handrail and wall or any projection thereon of at least 1 1/2 inches. The spacing of brackets shall not exceed 8 feet.

(c) The mounting of handrails must be such that the completed structure is capable of withstanding a load of at least 200 pounds applied in any direction at any point on the rail.

(6) You must ensure that all handrails and railings are provided with a clearance of not less than 1 1/2 inches between the handrail or railing and any other object.

(7) Floor opening covers may be of any material that meets the following strength requirements:

(a) Trench or conduit covers and their supports, when located in plant roadways, must be designed to carry a truck rear-axle load of at least twenty thousand pounds.

(b) Manhole covers and their supports, when located in plant roadways, must comply with local standard highway requirements if any; otherwise, they must be designed to carry a truck rear-axle of at least twenty thousand pounds.

(c) The construction of floor opening covers may be of any material that meets the strength requirements. Covers projecting not more than one inch above the floor level may be used providing all edges are chamfered to an angle with the horizontal of not over thirty degrees. All hinges, handles, bolts, or other parts must set flush with the floor or cover surface.

(8) You must ensure that skylight screens are of such construction and mounting that they are capable of withstanding a load of at least 200 pounds applied perpendicularly at any one area on the screen. You must also ensure that they are of such construction and mounting that under ordinary loads or impacts, they will not deflect downward sufficiently to break the glass below them. The construction must be of grillwork with openings not more than 4 inches long or of slatwork with openings not more than 2 inches wide with length unrestricted.

- (9) You must ensure that wall opening barriers (rails, rollers, picket fences, and half doors) are of such construction and mounting that, when in place at the opening, the barrier is capable of withstanding a load of at least 200 pounds applied in any direction (except upward) at any point on the top rail or corresponding member.
- (10) You must ensure that wall opening grab handles are not less than 12 inches in length and are so mounted as to give 1 1/2 inches clearance from the side framing of the wall opening. The size, material, and anchoring of the grab handle must be such that the completed structure is capable of withstanding a load of at least 200 pounds applied in any direction at any point of the handle.
- (11) You must ensure that wall opening screens are of such construction and mounting that they are capable of withstanding a load of at least 200 pounds applied horizontally at any point on the near side of the screen. They may be of solid construction, of grillwork with openings not more than 8 inches long, or of slatwork with openings not more than 4 inches wide with length unrestricted.

[Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), and [49.17.060](#). WSR 18-03-159, § 296-24-75011, filed 1/23/18, effective 2/23/18; WSR 15-24-100, § 296-24-75011, filed 12/1/15, effective 1/5/16; WSR 04-07-161, § 296-24-75011, filed 3/23/04, effective 6/1/04. Statutory Authority: Chapter [49.17](#) RCW. WSR 91-03-044 (Order 90-18), § 296-24-75011, filed 1/10/91, effective 2/12/91; WSR 89-11-035 (Order 89-03), § 296-24-75011, filed 5/15/89, effective 6/30/89. Statutory Authority: RCW [49.17.040](#), [49.17.150](#), and [49.17.240](#). WSR 79-08-115 (Order 79-9), § 296-24-75011, filed 7/31/79; Order 73-5, § 296-24-75011, filed 5/9/73 and Order 73-4, § 296-24-75011, filed 5/7/73.]

## **WAC 296-24-567 Employee emergency plans and fire prevention plans.**

### **(1) Emergency action plan.**

(a) **Scope and application.** This subdivision applies to all emergency action plans required by a particular DOSH standard. You must put the emergency action plan in writing, and it must cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies.

(b) **Elements.** You must include the following elements, at a minimum, in the plan:

- (i) Emergency escape procedures and emergency escape route assignments;
- (ii) Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;
- (iii) Procedures to account for all employees after emergency evacuation has been completed;
- (iv) Rescue and medical duties for those employees who are to perform them;
- (v) The preferred means of reporting fires and other emergencies; and
- (vi) Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.

### **(c) Alarm systems.**

You must establish an employee alarm system which complies with WAC [296-800-310](#). The employee alarm system must provide warning for necessary emergency action as called for in your emergency action plan. The employee alarm must be distinctive and recognizable as a signal to perform actions designed under the emergency action plan.

(d) **Evacuation.** You must establish in the emergency action plan the types of evacuation to be used in emergency circumstances.

### **(e) Training.**

(i) Before implementing the emergency action plan, you must designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

(ii) The employer shall review the plan with each employee covered by the plan at the following times:

- (A) Initially when the plan is developed;
- (B) Whenever the employee's responsibilities or designated actions under the plan change; and
- (C) Whenever the plan is changed.

(iii) You must review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. You must keep the written plan at the workplace and made available for employee review.

**(2) Fire prevention plan.**

(a) **Scope and application.** This subsection applies to all fire prevention plans required by a particular DOSH standard. You must put the fire prevention plan in writing.

(b) **Elements.** You must include the following elements, at a minimum, in the fire prevention plan:

(i) A list of the major workplace fire hazards and their proper handling and storage procedures, potential ignition sources (such as welding, smoking and others) and their control procedures, and the type of fire protection equipment or systems which can control a fire involving them;

(ii) Names or regular job titles of those personnel responsible for maintenance of equipment and systems installed to prevent or control ignitions or fires; and

(iii) Names or regular job titles of those personnel responsible for control of fuel source hazards.

(c) **Housekeeping.** You must control accumulations of flammable and combustible waste materials and residues so that they do not contribute to a fire emergency. You must include the housekeeping procedures in the written fire prevention plan.

**(d) Training.**

(i) You must apprise employees of the fire hazards of the materials and processes to which they are exposed.

(ii) You must review with each employee upon initial assignment those parts of the fire prevention plan which the employee must know to protect the employee in the event of an emergency. You must keep the written plan in the workplace and made available for employee review.

(e) **Maintenance.** You must regularly and properly maintain, according to established procedures, equipment and systems installed on heat producing equipment to prevent accidental ignition of combustible materials. You must include the maintenance procedures in the written fire prevention plan.

[Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), and [49.17.060](#). WSR 15-24-100, § 296-24-567, filed 12/1/15, effective 1/5/16. Statutory Authority: RCW [49.17.010](#), [\[49.17\].040](#), and [\[49.17\].050](#). WSR 01-11-038, § 296-24-567, filed 5/9/01, effective 9/1/01. Statutory Authority: Chapter [49.17](#) RCW. WSR 89-11-035 (Order 89-03), § 296-24-567, filed 5/15/89, effective 6/30/89. Statutory Authority: RCW [49.17.040](#) and [49.17.050](#). WSR 82-02-003 (Order 81-32), § 296-24-567, filed 12/24/81.]

**WAC 296-27-02101 Multiple business establishments.**

(1) You must keep a separate OSHA 300 Log for each establishment that is expected to be in operation for one year or longer.

(2) You must keep injury and illness records for short-term establishments (i.e., establishments that will exist for less than a year). You do not have to keep a separate OSHA 300 Log for each such establishment. You may keep one OSHA 300 Log that covers all of your short-term establishments. You may also include the short-term establishments' recordable injuries and illnesses on an OSHA 300 Log that covers short-term establishments for individual company divisions or geographic regions.

(3) If you keep records for an establishment at your headquarters or other central location, you must be able to:

(a) Transmit information about the injuries and illnesses from the establishment to the central location within seven calendar days of receiving information that a recordable injury or illness has occurred; **and**

(b) Produce and send the records from the central location to the establishment within the time frames required by WAC [296-27-02111](#), [296-27-03101](#)(1), and [296-27-03103](#) when you are required to provide records to a government representative, employees, former employees, or employee representatives.

(4) If you have employees that work at different locations or do not work at any of your establishments, you must link each of your employees with one of your establishments for recordkeeping purposes. You must record

the injury and illness on the OSHA 300 Log of the injured or ill employee's establishment, or on an OSHA 300 Log that covers that employee's short-term establishment.

(5) If an employee of one of your establishments is injured or becomes ill while visiting or working at another of your establishments, or while working away from any of your establishments, you must record the injury or illness on the OSHA 300 Log of the establishment at which the injury or illness occurred. If the employee is injured or becomes ill and is not at one of your establishments, you must record the case on the OSHA 300 Log at the establishment at which the employee normally works.

[Statutory Authority: RCW [49.17.010](#), [49.17.040](#), and [49.17.050](#). WSR 15-11-066, § 296-27-02101, filed 5/19/15, effective 7/1/15; WSR 02-01-064, § 296-27-02101, filed 12/14/01, effective 1/1/02.]

## Chapter 296-155 WAC Part J Stairways

### WAC 296-155-475 - Scope and application.

This part applies to all stairways used in construction, alteration, repair (including painting and decorating), and demolition workplaces covered under chapter [296-155](#) WAC, and also sets forth, in specified circumstances, when stairways are required to be provided.

Reference: • Requirements for ladders used on or with scaffolds are located in chapter [296-874](#) WAC, Scaffolds.

- Requirements for portable ladders and fixed ladders are located in chapter [296-876](#) WAC.

[Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), [49.17.060](#). WSR 06-16-020, § 296-155-475, filed 7/24/06, effective 12/1/06; WSR 05-20-068, § 296-155-475, filed 10/4/05, effective 1/1/06. Statutory Authority: Chapter [49.17](#) RCW. WSR 91-24-017 (Order 91-07), § 296-155-475, filed 11/22/91, effective 12/24/91. Statutory Authority: RCW [49.17.040](#) and [49.17.050](#). WSR 86-03-074 (Order 86-14), § 296-155-475, filed 1/21/86; Order 76-6, § 296-155-475, filed 3/1/76; Order 74-26, § 296-155-475, filed 5/7/74, effective 6/6/74.]

### WAC 296-155-47501 - Definitions applicable to this part.

**Equivalent.** Alternative designs, materials, or methods that you can demonstrate will provide an equal or greater degree of safety for employees than the method or item specified in the standard.

**Failure.** Load refusal, breakage, or separation of component parts. Load refusal is the point where the structural members lose their ability to carry the loads.

**Handrail.** A rail used to provide employees with a handhold for support.

**Lower levels.** Those areas to which an employee can fall from a stairway or ladder. Such areas include ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, material, water, equipment, and similar surfaces. It does not include the surface from which the employee falls.

**Nosing.** That portion of a tread projecting beyond the face of the riser immediately below.

**Platform.** A walking/working surface for persons, elevated above the surrounding floor or ground.

**Point of access.** All areas used by employees for work-related passage from one area or level to another. Such open areas include doorways, passageways, stairway openings, studded walls, and various other permanent or temporary openings used for such travel.

**Riser height.** The vertical distance from the top of a tread to the top of the next higher tread or platform/landing or the distance from the top of a platform/landing to the top of the next higher tread or platform/landing.

**Spiral stairway.** A series of steps attached to a vertical pole and progressing upward in a winding fashion within a cylindrical space.

**Stair rail system.** A vertical barrier erected along the unprotected sides and edges of a stairway to prevent employees from falling to lower levels. The top surface of a stair rail system may also be a "handrail."

**Tread depth.** The horizontal distance from front to back of a tread (excluding nosing, if any).

**Unprotected sides and edges.** Any side or edge (except at entrances to points of access) of a stairway where there is no stair rail system or wall 36 inches (.9 m) or more in height, and any side or edge (except at entrances to points of access) of a stairway landing, or ladder platform where there is no wall or guardrail system 39 inches (1 m) or more in height.

[Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), [49.17.060](#). WSR 16-09-085, § 296-155-47501, filed 4/19/16, effective 5/20/16; WSR 06-16-020, § 296-155-47501, filed 7/24/06, effective 12/1/06; WSR 05-20-068, § 296-155-47501, filed 10/4/05, effective 1/1/06. Statutory Authority: Chapter [49.17](#) RCW. WSR 91-24-017 (Order 91-07), § 296-155-47501, filed 11/22/91, effective 12/24/91.]

#### **WAC 296-155-476 - General requirements.**

(1) You must provide a stairway or ladder at all personnel points of access where there is a break in elevation of 19 inches (48 cm) or more, and no ramp, runway, sloped embankment, or personnel hoist is provided.

(a) Employees must not use any spiral stairways that will not be a permanent part of the structure on which construction work is being performed.

(b) You must provide a double-cleated ladder or two or more separate ladders when ladders are the only means of access or exit from a working area for 25 or more employees, or when a ladder is to serve simultaneous two-way traffic.

(c) When a building or structure has only one point of access between levels, you must keep that point of access clear to permit free passage of employees. When work must be performed or equipment must be used such that free passage at that point of access is restricted, you must provide and use a second point of access.

(d) When a building or structure has two or more points of access between levels, you must keep at least one point of access clear to permit free passage of employees.

(2) You must provide and install all stairway and ladder fall protection systems required by this part and you must comply with all other pertinent requirements of this part before employees begin the work that necessitates the installation and use of stairways, ladders, and their respective fall protection systems.

[Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), [49.17.060](#). WSR 16-09-085, § 296-155-476, filed 4/19/16, effective 5/20/16; WSR 06-05-027, § 296-155-476, filed 2/7/06, effective 4/1/06. Statutory Authority: Chapter [49.17](#) RCW. WSR 91-24-017 (Order 91-07), § 296-155-476, filed 11/22/91, effective 12/24/91.]

#### **WAC 296-155-477 - Stairways.**

(1) **General.** The following requirements apply to all stairways as indicated:

(a) Stairways that will not be a permanent part of the structure on which construction work is being performed must have landings of not less than 30 inches (76 cm) in the direction of travel and extend at least 22 inches (56 cm) in width at every 12 feet (3.7 m) or less of vertical rise.

(b) You must install stairs between 30 degrees and 50 degrees from horizontal.

(c) In all buildings or structures two or more stories or 24 feet or more in height or depth, you must install suitable permanent or temporary stairways.

(d) You must provide stairways, ramps or ladders at all points where a break in elevation of 18 inches or more occurs in a frequently traveled passageway, entry or exit.

(e) You must provide a minimum of one stairway for access and exit for buildings and structures to 3 stories or 36 feet; if more than 3 stories or 36 feet, you must provide two or more stairways. Where two stairways are provided and work is being performed in the stairways, you must maintain one clear for access between levels at all times.

(f) Wood frame buildings.

(i) You must complete the stairway to a second or higher floor before studs are raised to support the next higher floor.

- (ii) You must provide roof and attic work areas of all buildings with a safe means of access and egress, such as stairways, ramps or ladders.
  - (iii) You must nail cleats to studs to provide access to and egress from roof or other work areas.
  - (g) **Steel frame buildings.** Stairways must extend to the uppermost floor that has been planked or decked. Ladders may be used above that point.
  - (h) **Reinforced concrete or composite steel - Concrete buildings.** Stairways must extend to the lowermost floor upon which a complete vertical shoring system is in place. A minimum of two ladders at different locations for each floor may be used above this floor but not to exceed 3 floors.
  - (i) Riser height and tread depth must be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs. Variations in riser height or tread depth must not be over 1/4-inch (0.6 cm) in any stairway system.
  - (j) Where doors or gates open directly on a stairway, you must provide a platform, and the swing of the door must not reduce the effective width of the platform to less than 20 inches (51 cm).
  - (k) You must secure metal pan landings and metal pan treads, when used, in place before filling with concrete or other material.
  - (l) All parts of stairways must be free of hazardous projections, such as protruding nails.
  - (m) You must eliminate slippery conditions on stairways before the stairways are used to reach other levels.
  - (n) You are permitted to use alternating tread type stairs as long as they install, use, and maintain the stairs in accordance with manufacturer's recommendations and the following:
    - (i) The stair must be installed at an angle of 70 degrees or less.
    - (ii) The stair must be capable of withstanding a minimum uniform load of 100 pounds per square foot with a design factor of 1.7, and the treads must be capable of carrying a minimum concentrated load of 300 pounds at the center of any tread span or exterior arc with a design factor of 1.7. If the stair is intended for greater loading, construction must allow for that loading.
    - (iii) The stair must be equipped with a handrail on each side to assist the user in climbing or descending.
  - (o) Due to space limitations, when a permanent stairway must be installed at an angle above 50 degrees, such an installation (commonly called an inclined or ship's ladder) must have treads, open risers and handrails on both sides.
  - (p) Where ladders are permitted for access under subsection (1) of this section, you must provide means for employee hoisting of tools and material, such as a well wheel and hoisting line or the equivalent, so employees will have both hands free for ascending and descending ladders.
  - (2) **Temporary service.** The following requirements apply to all stairways as indicated:
    - (a) Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled in with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan. You must replace such temporary treads and landings when worn below the level of the top edge of the pan.
    - (b) Except during stairway construction, foot traffic is prohibited on skeleton metal stairs where permanent treads and/or landings are to be installed at a later date, unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread and/or landing area.
    - (c) Treads for temporary service must be made of wood or other solid material, and must be installed the full width and depth of the stair.
  - (3) **Stair rails and handrails.** The following requirements apply to all stairways as indicated:
    - (a) Stairways having 4 or more risers or rising more than 30 inches (76 cm), whichever is less, must be equipped with:
      - (i) At least one handrail; and
      - (ii) One stair rail system along each unprotected side or edge.
- Note: When the top edge of a stair rail system also serves as a handrail, subdivision (g) of this subsection applies.

(b) Winding and spiral stairways must be equipped with a handrail offset sufficiently to prevent walking on those portions of the stairways where the tread width is less than 6 inches (15 cm).

(c) The height of stair rails must be as follows:

(i) Stair rails installed after the effective date of this standard, must be not less than 36 inches (91.5 cm) from the upper surface of the stair rail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(ii) Stair rails installed before the effective date of this standard, must be not less than 30 inches (76 cm) nor more than 34 inches (86 cm) from the upper surface of the stair rail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(d) You must provide midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members, between the top rail of the stair rail system and the stairway steps.

(i) You must locate midrails, when used, at a height midway between the top edge of the stair rail system and the stairway steps.

(ii) Screens or mesh, when used, must extend from the top rail to the stairway step, and along the entire opening between top rail supports.

(iii) When intermediate vertical members, such as balusters, are used between posts, they must be not more than 19 inches (48 cm) apart.

(iv) You must install other structural members, when used, such that there are no openings in the stair rail system that are more than 19 inches (48 cm) wide.

(e) Handrails and the top rails of stair rail systems must be capable of withstanding, without failure, a force of at least 200 pounds (890 n) applied within two inches (5 cm) of the top edge, in any downward or outward direction, at any point along the top edge.

(f) The height of handrails must be not more than 37 inches (94 cm) nor less than 30 inches (76 cm) from the upper surface of the handrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(g) When the top edge of a stair rail system also serves as a handrail, the height of the top edge must be not more than 37 inches (94 cm) nor less than 36 inches (91.5 cm) from the upper surface of the stair rail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(h) Stair rail systems and handrails must be so surfaced as to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.

(i) Handrails must provide an adequate handhold for employees grasping them to avoid falling.

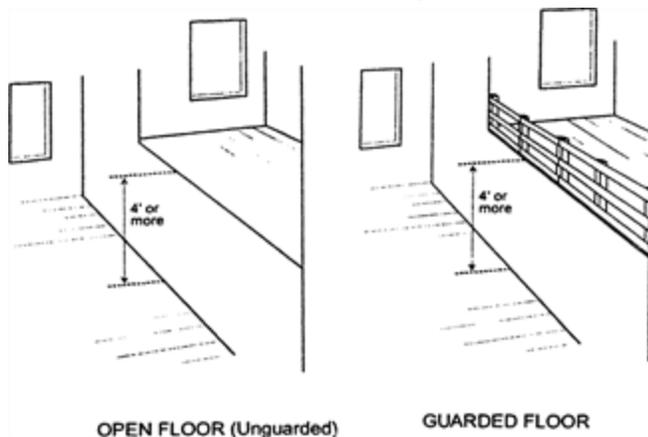
(j) The ends of stair rail systems and handrails must be constructed so as not to constitute a projection hazard.

(k) Handrails that will not be a permanent part of the structure being built must have a minimum clearance of 3 inches (8 cm) between the handrail and walls, stair rail systems, and other objects.

(l) You must provide unprotected sides and edges of stairway landings with guardrail systems. Guardrail system criteria are contained in chapter [296-155](#) WAC, Part C-1, Fall protection requirements for construction.

[Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), [49.17.060](#). WSR 16-09-085, § 296-155-477, filed 4/19/16, effective 5/20/16. Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), [49.17.060](#) and 29 C.F.R. 1926, Subpart M, Fall Protection. WSR 13-04-073, § 296-155-477, filed 2/4/13, effective 4/1/13. Statutory Authority: RCW [49.17.040](#), [49.17.]050 and [49.17.]060. WSR 96-24-051, § 296-155-477, filed 11/27/96, effective 2/1/97. Statutory Authority: Chapter [49.17](#) RCW. WSR 95-10-016, § 296-155-477, filed 4/25/95, effective 10/1/95; WSR 91-24-017 (Order 91-07), § 296-155-477, filed 11/22/91, effective 12/24/91.]

## WAC 296-800-26010 - Protect open-sided floors and platforms.



You must:

(1) Guard open-sided floors and platforms.

- Guard open-sided floors and platforms four feet or more above adjacent floor or ground level by a railing. The entrance to a ramp, stairway, or fixed ladder does not need a railing.
- Guard open-sided floors, walkways and platforms above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, and other similar hazards, regardless of height with a railing and toeboard.

(2) Make sure tools and loose materials are not left on overhead platforms and scaffolds.

Note: • Where the guarding rules above do not apply because employees exposure to falls is infrequent (not on a predictable and regular basis), you must comply with the Personal Protective Equipment (PPE) rules (WAC [296-800-160](#)) or other effective fall protection must be provided.

- You can find the minimum requirements for standard railings of various types of construction in WAC [296-24-75011](#).

[Statutory Authority: RCW [49.17.010](#), [49.17].040, and [49.17].050. WSR 01-23-060, § 296-800-26010, filed 11/20/01, effective 12/1/01; WSR 01-11-038, § 296-800-26010, filed 5/9/01, effective 9/1/01.]

## WAC 296-800-25005 Provide fixed stairs where required.

You must:

- Install fixed stairs where:
  - Employees travel between different levels on a predictable and regular basis.
  - Access to platforms is required to give routine attention to equipment under operation.
  - Daily movement between elevations is required to gauge, inspect, and maintain equipment where those work assignments may expose employees to acids, caustics, gases, or other harmful substances.
  - Carrying tools or equipment by hand is a normal work requirement.
- Not use spiral stairways except as secondary exit routes.

Note:

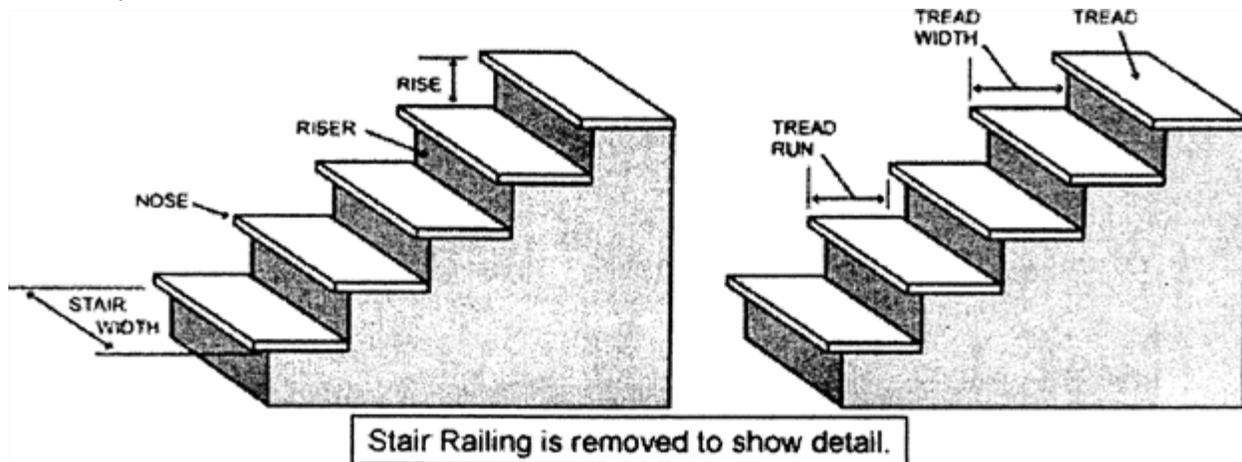
- You can use fixed ladders for climbing elevated structures, such as tanks, towers, and overhead traveling cranes, when their use is common practice in your industry.
- You can use winding stairways on tanks and similar round structures if the structure's diameter is at least five feet.
- You could use a spiral stairway as an exit route in a restricted area that lacks room for a conventional stairway.

Definitions: • A stairway or fixed stairs is a series of steps and landings:

- Leading from one level or floor to another.

- Leading to platforms, pits, boiler rooms, crossovers, or around machinery, tanks, and other equipment.
- Used more or less continuously or routinely by employees or only occasionally by specific individuals.
- With three or more risers.
  - A riser is the vertical part of the step at the back of a tread that rises to the front of the tread above.
  - A tread is the horizontal part of the step. Tread width is the distance from the front of the tread to the back.

#### Stair Components



[Statutory Authority: RCW [49.17.010](#), [49.17].040, and [49.17].050. WSR 01-23-060, § 296-800-25005, filed 11/20/01, effective 12/1/01; WSR 01-11-038, § 296-800-25005, filed 5/9/01, effective 9/1/01.]

#### **WAC 296-800-31010 Make sure that exit routes are large enough.**

You must:

- Make sure each exit route is large enough to accommodate the maximum-permitted occupant load for each floor served by the route.
- Make sure the capacity of an exit route does not decrease at any point.
- Make sure the exit route has a minimum ceiling height of 7 feet 6 inches and that no projection from the ceiling is less than 6 feet 8 inches from the floor.
  - Objects that stick out into the exit route, such as fans hanging from the ceilings or cabinets on walls, must not reduce the minimum height of the exit route to less than 6 feet 8 inches from the floor.
- Make sure exit routes are at least 28 inches wide at all points between any handrails.
  - If necessary, routes must be wider than 28 inches to accommodate the expected occupant load.
  - Make sure objects that stick out into the exit route, such as cabinets on walls, do not reduce the minimum width of the exit route.

[Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), [49.17.060](#), and chapter [49.17](#) RCW. WSR 11-04-080, § 296-800-31010, filed 2/1/11, effective 4/1/11. Statutory Authority: RCW [49.17.010](#), [49.17.040](#), [49.17.050](#), [49.17.060](#). WSR 08-18-056, § 296-800-31010, filed 9/2/08, effective 11/2/08. Statutory Authority: RCW [49.17.010](#), [49.17].040, and [49.17].050. WSR 01-23-060, § 296-800-31010, filed 11/20/01, effective 12/1/01; WSR 01-11-038, § 296-800-31010, filed 5/9/01, effective 9/1/01.]

#### **WAC 296-800-31005 Provide an adequate number of exit routes.**

You must:

- Provide a minimum of two exit routes to provide different ways for employees to leave the workplace safely during an emergency (at least two of the exit routes must be remote from one another so employees can safely exit if one exit route becomes blocked or unavailable).
- Provide an adequate number (at least two) of exit routes, considering the kind, number, location and capacity, appropriate to each building according to the following conditions:
  - Number of employees
  - Size of building
  - Arrangement of workplace
  - Building occupancy

Note: A single exit route is permitted where the number of employees, the size of the building, its occupancy, or the arrangement of the workplace indicates that a single exit will allow all employees to exit safely during an emergency. Other means of escape, such as fire exits or accessible windows, should be available where only one exit route is provided.

[Statutory Authority: RCW [49.17.010](#), [49.17].040, and [49.17].050. WSR 01-11-038, § 296-800-31005, filed 5/9/01, effective 9/1/01.]

**WAC 296-800-22022 Make sure floors are maintained in a safe condition.**

You must:

- Make sure floors are kept free of debris. This includes:
  - Buildings
  - Platforms
  - Walkways and driveways
  - Storage yards
  - Docks
- Use a nonslip coating on all polished floors.

[Statutory Authority: RCW [49.17.010](#), [49.17].040, and [49.17].050. WSR 01-11-038, § 296-800-22022, filed 5/9/01, effective 9/1/01.]

**WAC 296-800-26005 Guard or cover floor openings and floor holes.**

Definition: A **floor opening** is an opening in any floor, platform, pavement, or yard that measures at least twelve inches in its smallest dimension and through which a person can fall.

Examples of floor openings are:

- Hatchways
- Stair or ladder openings
- Pits
- Large manholes.

The following are **not** considered **floor openings**:

- Openings occupied by elevators
- Dumbwaiters
- Conveyors
- Machinery
- Containers

A **floor hole** is an opening in any floor, platform, pavement, or yard that measures at least one inch but less than twelve inches at its smallest dimension and through which materials and tools (but not people) can fall.

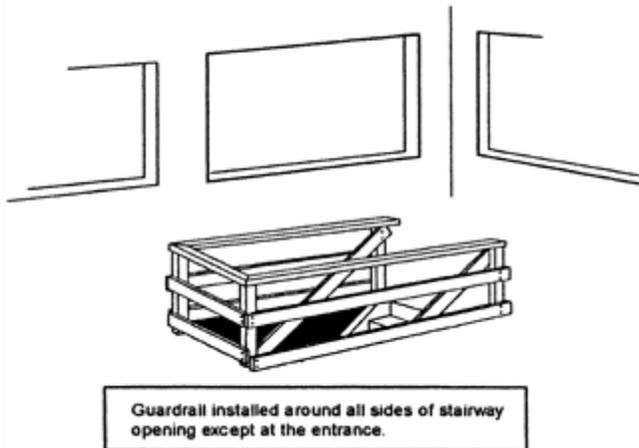
Examples of floor holes are:

- Belt holes
- Pipe openings
- Slot openings

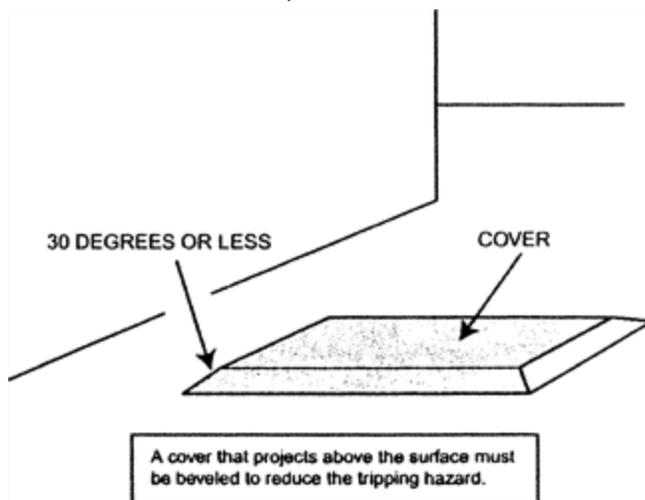
You must:

(1) Guard stairway floor openings, temporary floor openings and floor holes.

- Protect all stairway floor openings with a railing. The railing must protect all open sides except the stairway entrance side.



- Use a hinged cover and a removable railing where traffic across an infrequently used stairway floor opening prevents the installation of a fixed railing. This removable railing must protect all open sides except the stairway entrance side.
- Protect temporary floor openings by either a railing or by a person who constantly attends the opening.
- Protect exposed floor holes into which a person can accidentally walk by either:
  - A railing with a toeboard on all open sides or
  - A floor hole cover of standard strength and construction that can be hinged in place. When a floor hole cover is not in place, the hole must be protected by a removable railing or constantly attended by someone.
- Provide covers for floor openings. Floor opening covers may be of any material that has a safety factor of four, or is strong enough to hold up to four times the intended load. Covers that do not project more than one inch above the floor level may be used providing all edges are beveled (slanted) to prevent tripping. All hinges, handles, bolts, or other parts of a cover must set flush with the floor or cover surface.



(2) Prevent tools and materials from falling through a floor hole. The floor hole must be protected by a cover that leaves an opening no more than one inch wide and is securely held in place. This applies only to floor holes that persons cannot accidentally walk into on account of fixed machinery, equipment, or walls.

[Statutory Authority: RCW [49.17.010](#), [49.17].040, and [49.17].050. WSR 01-11-038, § 296-800-26005, filed 5/9/01, effective 9/1/01.]

**WAC 296-800-14005 Develop a formal, written accident prevention program.**

You must:

- Develop a formal accident prevention program that is outlined in writing. The program must be tailored to the needs of your particular workplace or operation and to the types of hazards involved.

Note: The term "accident prevention program" refers to your written plan to prevent accidents, illnesses, and injuries on the job. Your accident prevention program may be known as your safety and health plan, injury prevention program, or by some other name.

You must:

- Make sure your Accident Prevention Program contains at least the following elements:

– A safety orientation:

- A description of your total safety and health program.
- On-the-job orientation showing employees what they need to know to perform their initial job assignments safely.
- How and when to report on-the-job injuries including instruction about the location of first-aid facilities in your workplace.  
How to report unsafe conditions and practices.
- The use and care of required personal protective equipment (PPE).
- What to do in an emergency, including how to exit the workplace.
- Identification of hazardous gases, chemicals, or materials used on-the-job and instruction about the safe use and emergency action to take after accidental exposure.

– A safety and health committee.

(WAC [296-800-130](#).)

[Statutory Authority: RCW [49.17.010](#), [49.17].040, and [49.17].050. WSR 01-11-038, § 296-800-14005, filed 5/9/01, effective 9/1/01.]

## **WAC 296-800-16005 Do a hazard assessment for PPE**

You must:

- Look for and identify hazards or potential hazards in your workplace and determine if PPE is necessary on the job.

Note: PPE alone should not be relied on to provide protection for your employees. PPE should be used after all other reasonable means of reducing hazards have been carried out. Identifying hazards in your workplace should be built into your regular routine. You should take active steps to get rid of all identified hazards.

For example, you can:

- Consider other ways to get hazardous jobs done.
- Reduce hazardous materials or processes.
- Apply engineering controls to reduce or eliminate hazards.

[Statutory Authority: RCW [49.17.010](#), [49.17].040, and [49.17].050. WSR 01-11-038, § 296-800-16005, filed 5/9/01, effective 9/1/01.]

## **Chapter 296-809 WAC Confined Spaces**

### National Safety Codes

#### **National Fire Protection (NFPA) 101 Life Safety Code**

#### **OSHA 29 CFR 1910.36 Design and construction requirements for exit routes**

##### **1910.36(a)**

Basic requirements. Exit routes must meet the following design and construction requirements:

##### **1910.36(a)(1)**

An exit route must be permanent. Each exit route must be a permanent part of the workplace.

##### **1910.36(a)(2)**

An exit must be separated by fire resistant materials. Construction materials used to separate an exit from other parts of the workplace must have a one-hour fire resistance-rating if the exit connects three or fewer stories and a two-hour fire resistance-rating if the exit connects four or more stories.

##### **1910.36(a)(3)**

Openings into an exit must be limited. An exit is permitted to have only those openings necessary to allow access to the exit from occupied areas of the workplace, or to the exit discharge. An opening into an exit must be protected by a self-closing fire door that remains closed or automatically closes in an emergency upon the sounding of a fire alarm or employee alarm system. Each fire door, including its frame and hardware, must be listed or approved by a nationally recognized testing laboratory. Section 1910.155(c)(3)(iv)(A) of this part defines listed and § 1910.7 of this part defines a nationally recognized testing laboratory.

##### **1910.36(b)**

The number of exit routes must be adequate.

##### **1910.36(b)(1)**

Two exit routes. At least two exit routes must be available in a workplace to permit prompt evacuation of employees and other building occupants during an emergency, except as allowed in paragraph (b)(3) of this

section. The exit routes must be located as far away as practical from each other so that if one exit route is blocked by fire or smoke, employees can evacuate using the second exit route.

**1910.36(b)(2)**

More than two exit routes. More than two exit routes must be available in a workplace if the number of employees, the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would not be able to evacuate safely during an emergency.

**1910.36(b)(3)**

A single exit route. A single exit route is permitted where the number of employees, the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would be able to evacuate safely during an emergency.

Note to paragraph (b) of this section: For assistance in determining the number of exit routes necessary for your workplace, consult NFPA 101-2009, Life Safety Code, or IFC- 2009, International Fire Code (incorporated by reference, see § 1910.6).

**1910.36(c)**

Exit discharge.

**1910.36(c)(1)**

Each exit discharge must lead directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside.

**1910.36(c)(2)**

The street, walkway, refuge area, public way, or open space to which an exit discharge leads must be large enough to accommodate the building occupants likely to use the exit route.

**1910.36(c)(3)**

Exit stairs that continue beyond the level on which the exit discharge is located must be interrupted at that level by doors, partitions, or other effective means that clearly indicate the direction of travel leading to the exit discharge.

**1910.36(d)**

An exit door must be unlocked.

**1910.36(d)(1)**

Employees must be able to open an exit route door from the inside at all times without keys, tools, or special knowledge. A device such as a panic bar that locks only from the outside is permitted on exit discharge doors.

**1910.36(d)(2)**

Exit route doors must be free of any device or alarm that could restrict emergency use of the exit route if the device or alarm fails.

**1910.36(d)(3)**

An exit route door may be locked from the inside only in mental, penal, or correctional facilities and then only if supervisory personnel are continuously on duty and the employer has a plan to remove occupants from the facility during an emergency.

**1910.36(e)**

A side-hinged exit door must be used.

**1910.36(e)(1)**

A side-hinged door must be used to connect any room to an exit route.

**1910.36(e)(2)**

The door that connects any room to an exit route must swing out in the direction of exit travel if the room is designed to be occupied by more than 50 people or if the room is a high hazard area (i.e., contains contents that are likely to burn with extreme rapidity or explode).

**1910.36(f)**

The capacity of an exit route must be adequate.

**1910.36(f)(1)**

Exit routes must support the maximum permitted occupant load for each floor served.

**1910.36(f)(2)**

The capacity of an exit route may not decrease in the direction of exit route travel to the exit discharge.

Note to paragraph (f) of this section: Information regarding the "Occupant load" is located in NFPA 101-2009, Life Safety Code, and in IFC-2009, International Fire Code (incorporated by reference, see § 1910.6).

**1910.36(g)**

An exit route must meet minimum height and width requirements.

**1910.36(g)(1)**

The ceiling of an exit route must be at least seven feet six inches (2.3 m) high. Any projection from the ceiling must not reach a point less than six feet eight inches (2.0 m) from the floor.

**1910.36(g)(2)**

An exit access must be at least 28 inches (71.1 cm) wide at all points. Where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access.

**1910.36(g)(3)**

The width of an exit route must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route.

**1910.36(g)(4)**

Objects that project into the exit route must not reduce the width of the exit route to less than the minimum width requirements for exit routes.

**1910.36(h)**

An outdoor exit route is permitted.

**1910.36(h)(1)**

The outdoor exit route must have guardrails to protect unenclosed sides if a fall hazard exists;

**1910.36(h)(2)**

The outdoor exit route must be covered if snow or ice is likely to accumulate along the route, unless the employer can demonstrate that any snow or ice accumulation will be removed before it presents a slipping hazard;

**1910.36(h)(3)**

The outdoor exit route must be reasonably straight and have smooth, solid, substantially level walkways; and

**1910.36(h)(4)**

The outdoor exit route must not have a dead-end that is longer than 20 feet (6.2 m).

## International Building Codes

### International Building Code Chapter 10 Means of Egress Section 1011 Stairways

**1011.1 General**

Stairways serving occupied portions of a building shall comply with the requirements of Sections 1011.2 through 1011.13. Alternating tread devices shall comply with Section 1011.14. Ships ladders shall comply with Section 1011.15. Ladders shall comply with Section 1011.16.

Exception: Within rooms or spaces used for assembly purposes, stepped aisles shall comply with Section 1029.

**1011.2 Width and Capacity**

The required capacity of stairways shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm). See Section 1009.3 for accessible means of egress stairways.

Exceptions:

1. Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1011.10.
3. Where an incline platform lift or stairway chairlift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, a clear passage width not less than 20 inches (508 mm) shall be provided. Where the seat and platform can be folded when not in use, the distance shall be measured from the folded position.

**1011.3 Headroom**

Stairways shall have a headroom clearance of not less than 80 inches (2032 mm) measured vertically from a line connecting the edge of the nosings. Such headroom shall be continuous above the stairway to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the stairway and landing.

Exceptions:

1. Spiral stairways complying with Section 1011.10 are permitted a 78-inch (1981 mm) headroom clearance.
2. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; where the nosings of treads at the side of a flight extend under the edge of a floor opening through which the stair passes, the floor opening shall be allowed to project horizontally into the required headroom not more than 43/4 inches (121 mm).

**1011.4 Walkline**

The walkline across winder treads shall be concentric to the direction of travel through the turn and located 12 inches (305 mm) from the side where the winders are narrower. The 12-inch (305 mm) dimension shall be measured from the widest point of the clear stair width at the walking surface of the winder. Where winders are adjacent within the flight, the point of the widest clear stair width of the adjacent winders shall be used.

**1011.5 Stair Treads and Risers**

Stair treads and risers shall comply with Sections 1011.5.1 through 1011.5.5.3.

**1011.5.1 Dimension Reference Surfaces**

For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

### **1011.5.2 Riser Height and Tread Depth**

Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

Exceptions:

1. Spiral stairways in accordance with Section 1011.10.
2. Stairways connecting stepped aisles to cross aisles or concourses shall be permitted to use the riser/tread dimension in Section 1029.13.2.
3. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 7<sup>3</sup>/<sub>4</sub> inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walkline shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing projection not less than 3/4 inch (19.1 mm) but not more than 1<sup>1</sup>/<sub>4</sub> inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
4. See Section 403.1 of the International Existing Building Code for the replacement of existing stairways.
5. In Group I-3 facilities, stairways providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m<sup>2</sup>) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

### **1011.5.3 Winder Treads**

Winder treads are not permitted in means of egress stairways except within a dwelling unit.

Exceptions:

1. Curved stairways in accordance with Section 1011.9.
2. Spiral stairways in accordance with Section 1011.10.

### **1011.5.4 Dimensional Uniformity**

Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the walkline within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Exceptions:

1. Stairways connecting stepped aisles to cross aisles or concourses shall be permitted to comply with the dimensional nonuniformity in Section 1029.13.2.
2. Consistently shaped winders, complying with Section 1011.5, differing from rectangular treads in the same flight of stairs.
3. Nonuniform riser dimension complying with Section 1011.5.4.1.

#### **1011.5.4.1 Nonuniform Height Risers**

Where the bottom or top riser adjoins a sloping public way, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of stair width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of not less than 1 inch (25 mm) but not more than 2 inches (51 mm).

#### **1011.5.5 Nosing and Riser Profile**

Nosings shall have a curvature or bevel of not less than 1/16 inch (1.6 mm) but not more than 9/16 inch (14.3 mm) from the foremost projection of the tread. Risers shall be solid and vertical or sloped under the tread above from the underside of the nosing above at an angle not more than 30 degrees (0.52 rad) from the vertical.

##### **1011.5.5.1 Nosing Projection Size**

The leading edge (nosings) of treads shall project not more than 11/4 inches (32 mm) beyond the tread below.

##### **1011.5.5.2 Nosing Projection Uniformity**

Nosing projections of the leading edges shall be of uniform size, including the projections of the nosing's leading edge of the floor at the top of a flight.

##### **1011.5.5.3 Solid Risers**

Risers shall be solid.

Exceptions:

1. Solid risers are not required for stairways that are not required to comply with Section 1009.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas accessible to the public. There are no restrictions on the size of the opening in the riser.
3. Solid risers are not required for spiral stairways constructed in accordance with Section 1011.10.

#### **1011.6 Stairway Landings**

There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall be not less than the width of stairways served. Every landing shall have a minimum width measured perpendicular to the direction of travel equal to the width of the stairway. Where the stairway has a straight run the depth need not exceed 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

Exception: Where stairways connect stepped aisles to cross aisles or concourses, stairway landings are not required at the transition between stairways and stepped aisles constructed in accordance with Section 1029.

#### **1011.7 Stairway Construction**

Stairways shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction.

##### **1011.7.1 Stairway Walking Surface**

The walking surface of treads and landings of a stairway shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. Stairway treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached.

Exceptions:

1. Openings in stair walking surfaces shall be a size that does not permit the passage of 1/2-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided a sphere with a diameter of 11/8 inches (29 mm) cannot pass through the opening.

**1011.7.2 Outdoor Conditions**

Outdoor stairways and outdoor approaches to stairways shall be designed so that water will not accumulate on walking surfaces.

**1011.7.3 Enclosures Under Interior Stairways**

The walls and soffits within enclosed usable spaces under enclosed and unenclosed stairways shall be protected by 1-hour fire-resistance-rated construction or the fire-resistance rating of the stairway enclosure, whichever is greater. Access to the enclosed space shall not be directly from within the stairway enclosure.

Exception: Spaces under stairways serving and contained within a single residential dwelling unit in Group R-2 or R-3 shall be permitted to be protected on the enclosed side with 1/2-inch (12.7 mm) gypsum board.

**1011.7.4 Enclosures Under Exterior Stairways**

There shall not be enclosed usable space under exterior exit stairways unless the space is completely enclosed in 1-hour fire-resistance-rated construction. The open space under exterior stairways shall not be used for any purpose.

**1011.8 Vertical Rise**

A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

Exception: Spiral stairways used as a means of egress from technical production areas.

**1011.9 Curved Stairways**

Curved stairways with winder treads shall have treads and risers in accordance with Section 1011.5 and the smallest radius shall be not less than twice the minimum width or required capacity of the stairway.

Exception: The radius restriction shall not apply to curved stairways in Group R-3 and within individual dwelling units in Group R-2.

**1011.10 Spiral Stairways**

Spiral stairways are permitted to be used as a component in the means of egress only within dwelling units or from a space not more than 250 square feet (23 m<sup>2</sup>) in area and serving not more than five occupants, or from technical production areas in accordance with Section 410.6.

A spiral stairway shall have a 7 1/2-inch (191 mm) minimum clear tread depth at a point 12 inches (305 mm) from the narrow edge. The risers shall be sufficient to provide a headroom of 78 inches (1981 mm) minimum, but riser height shall not be more than 9 1/2 inches (241 mm). The minimum stairway clear width at and below the handrail shall be 26 inches (660 mm).

**1011.11 Handrails**

Stairways shall have handrails on each side and shall comply with Section 1014. Where glass is used to provide the handrail, the handrail shall comply with Section 2407.

Exceptions:

1. Stairways within dwelling units and spiral stairways are permitted to have a handrail on one side only.
2. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
3. In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require handrails.
4. Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.

**1011.12 Stairway to Roof**

In buildings four or more stories above grade plane, one stairway shall extend to the roof surface unless the roof has a slope steeper than four units vertical in 12 units horizontal (33-percent slope).

Exception: Other than where required by Section 1011.12.1, in buildings without an occupied roof access to the roof from the top story shall be permitted to be by an alternating tread device, a ships ladder or a permanent ladder.

#### **1011.12.1 Stairway to Elevator Equipment**

Roofs and penthouses containing elevator equipment that must be accessed for maintenance are required to be accessed by a stairway.

#### **1011.12.2 Roof Access**

Where a stairway is provided to a roof, access to the roof shall be provided through a penthouse complying with Section 1510.2.

Exception: In buildings without an occupied roof, access to the roof shall be permitted to be a roof hatch or trap door not less than 16 square feet (1.5 m<sup>2</sup>) in area and having a minimum dimension of 2 feet (610 mm).

#### **1011.13 Guards**

Guards shall be provided along stairways and landings where required by Section 1015 and shall be constructed in accordance with Section 1015. Where the roof hatch opening providing the required access is located within 10 feet (3049 mm) of the roof edge, such roof access or roof edge shall be protected by guards installed in accordance with Section 1015.

#### **1011.14 Alternating Tread Devices**

Alternating tread devices are limited to an element of a means of egress in buildings of Groups F, H and S from a mezzanine not more than 250 square feet (23 m<sup>2</sup>) in area and that serves not more than five occupants; in buildings of Group I-3 from a guard tower, observation station or control room not more than 250 square feet (23 m<sup>2</sup>) in area and for access to unoccupied roofs. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.

##### **1011.14.1 Handrails of Alternating Tread Devices**

Handrails shall be provided on both sides of alternating tread devices and shall comply with Section 1014.

##### **1011.14.2 Treads of Alternating Tread Devices**

Alternating tread devices shall have a minimum tread depth of 5 inches (127 mm), a minimum projected tread depth of 8 1/2 inches (216 mm), a minimum tread width of 7 inches (178 mm) and a maximum riser height of 9 1/2 inches (241 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projections of adjacent treads. The riser height shall be measured vertically between the leading edges of adjacent treads. The riser height and tread depth provided shall result in an angle of ascent from the horizontal of between 50 and 70 degrees (0.87 and 1.22 rad). The initial tread of the device shall begin at the same elevation as the platform, landing or floor surface.

Exception: Alternating tread devices used as an element of a means of egress in buildings from a mezzanine area not more than 250 square feet (23 m<sup>2</sup>) in area that serves not more than five occupants shall have a minimum tread depth of 3 inches (76 mm) with a minimum projected tread depth of 10 1/2 inches (267 mm). The rise to the next alternating tread surface shall not exceed 8 inches (203 mm).

#### **1011.15 Ships Ladders**

Ships ladders are permitted to be used in Group I-3 as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 square feet (23 m<sup>2</sup>) with not more than three occupants and for access to unoccupied roofs. The minimum clear width at and below the handrails shall be 20 inches (508 mm).

##### **1011.15.1 Handrails of Ships Ladders**

Handrails shall be provided on both sides of ships ladders.

### **1011.15.2 Treads of Ships Ladders**

Ships ladders shall have a minimum tread depth of 5 inches (127 mm). The tread shall be projected such that the total of the tread depth plus the nosing projection is not less than 8 1/2 inches (216 mm). The maximum riser height shall be 9 1/2 inches (241 mm).

### **1011.16 Ladders**

Permanent ladders shall not serve as a part of the means of egress from occupied spaces within a building. Permanent ladders shall be permitted to provide access to the following areas:

1. Spaces frequented only by personnel for maintenance, repair or monitoring of equipment.
2. Nonoccupiable spaces accessed only by catwalks, crawl spaces, freight elevators or very narrow passageways.
3. Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to, observation galleries, prison guard towers, fire towers or lifeguard stands.
4. Elevated levels in Group U not open to the general public.
5. Nonoccupied roofs that are not required to have stairway access in accordance with Section 1011.12.1.
6. Ladders shall be constructed in accordance with Section 306.5 of the International Mechanical Code.

### **International Building Code 1203.1**

General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the International Mechanical Code.

### **International Building Code 1203.2**

Attic spaces. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1 inch (25 mm) of airspace shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150 of the area of the space ventilated, with 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

Exception: The minimum required net free ventilating area shall be 1/300 of the area of the space ventilated, provided a vapor retarder having a transmission rate not exceeding 1 perm in accordance with ASTM E 96 is installed on the warm side of the attic insulation and provided 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents, with the balance of the required ventilation provided by eave or cornice vents.

Openings into attic. Exterior openings into the attic space of any building intended for human occupancy shall be covered with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material that will prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. The openings therein shall be a minimum of 1/8 inch (3.2 mm) and shall not exceed 1/4 inch (6.4 mm). Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the International Mechanical Code.

### **International Building Code 1203.2.1**

Openings into attic. Exterior openings into the attic space of any building intended for human occupancy shall be covered with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material that will prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. The openings therein shall be a minimum of 1/8 inch (3.2 mm) and shall not exceed 1/4 inch (6.4 mm). Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the International Mechanical Code.

**International Building Code 1203.3**

Under-floor ventilation. The space between the bottom of the floor joists and the earth under any building except spaces occupied by a basement or cellar shall be provided with ventilation openings through foundation walls or exterior walls. Such openings shall be placed to provide cross ventilation of the under-floor space. Openings for under-floor ventilation. The minimum net area of ventilation openings shall not be less than 1 square foot for each 150 square feet (0.67 m<sup>2</sup> for each 100 m<sup>2</sup>) of crawl-space area. Ventilation openings shall be covered for their height and width with any of the following materials, if the least dimension of the covering shall not exceed 1/4 inch (6 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grilles or gratings.
4. Extruded load bearing vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension not exceeding 1/8 inch (3.2 mm).

Exceptions. The following are exceptions to Sections 1203.3 and 1203.3.1:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.
2. The total area of ventilation openings is permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is treated with an approved vapor retarder material and the required openings are placed so as to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.
3. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m<sup>2</sup>) of crawl-space 2006 INTERNATIONAL BUILDING CODE 249 floor area and the ground surface is covered with an approved vapor retarder.
4. Ventilation openings are not required when the ground surface is covered with an approved vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the International Energy Conservation Code.
5. For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 if the ventilation openings are designed and installed in accordance with ASCE 24.

**International Building Code 1203.3.1**

Openings for under-floor ventilation. The minimum net area of ventilation openings shall not be less than 1 square foot for each 150 square feet (0.67 m<sup>2</sup> for each 100 m<sup>2</sup>) of crawl-space area. Ventilation openings shall be covered for their height and width with any of the following materials, if the least dimension of the covering shall not exceed 1/4 inch (6 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grilles or gratings.
4. Extruded load bearing vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension not exceeding 1/8 inch (3.2 mm).

**International Building Code 1203.3.2**

Exceptions. The following are exceptions to Sections 1203.3 and 1203.3.1:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.
2. The total area of ventilation openings is permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is treated with an approved vapor retarder material and the required openings are placed to provide cross ventilation of the space. The installation of operable

louvers shall not be prohibited. 3. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m<sup>2</sup>) of crawl-space 2006 INTERNATIONAL BUILDING CODE 249 floor area and the ground surface is covered with an approved vapor retarder.

4. Ventilation openings are not required when the ground surface is covered with an approved vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the International Energy Conservation Code.

5. For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 if the ventilation openings are designed and installed in accordance with ASCE 24.

#### **International Building Code 1203.4**

Natural ventilation. Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The building occupants shall provide the operating mechanism for such openings with ready access so that the openings are readily controllable.

Ventilation area required. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

Adjoining spaces. Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated. Exception: Exterior openings required for ventilation shall be permitted to open into a thermally isolated sunroom addition or patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

Openings below grade. Where openings below grade provide required natural ventilation, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

Contaminants exhausted. Contaminant sources in naturally ventilated spaces shall be removed in accordance with the International Mechanical Code and the International Fire Code.

Bathrooms. Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the International Mechanical Code.

Openings on yards or courts. Where natural ventilation is to be provided by openings onto yards or courts, Such yards or courts shall comply with Section 1206.

##### **International Building Code 1203.4.1**

Ventilation area required. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

Adjoining spaces. Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated. Exception: Exterior openings required for ventilation shall be permitted to open into a thermally isolated sunroom addition or patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

Openings below grade. Where openings below grade provide required natural ventilation, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

**International Building Code 1203.4.1.1**

Adjoining spaces. Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated. Exception: Exterior openings required for ventilation shall be permitted to open into a thermally isolated sunroom addition or patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

**International Building Code 1203.4.2**

Contaminants exhausted. Contaminant sources in naturally ventilated spaces shall be removed in accordance with the International Mechanical Code and the International Fire Code.

**International Building Code 1203.5**

Other ventilation and exhaust systems. Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the International Mechanical Code or the International Fire Code shall be provided as required by both