

CHAPTER 46

FIRE AND LIFE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

SECTION 4601 GENERAL

4601.1 Scope. The provisions of this chapter shall apply to existing buildings constructed prior to a state building code regulation applicable at the time of construction [ORS 476.030(c)]. Once a building has been reviewed and is in conformance with this chapter, so long as the building is built, occupied, and maintained in conformity with that approval, no additional requirements will be necessary.

ORS 476.030(c) is not part of this code but is reproduced or paraphrased here for the reader's convenience.

ORS 476.030(c) defines the rules for maintenance and regulations of structural fire safety features in occupied structures and overseeing the safety and directing the means and adequacy of exits in case of fire except that structural changes shall not be required in buildings built, occupied and maintained in conformity with state building code regulations applicable at the time of construction.

4601.2 Intent. The intent of this chapter is to provide a minimum degree of fire and life safety in conjunction with OAR 837-041-0050 to *persons* occupying existing buildings by providing for *alterations* to such buildings that do not comply with the minimum requirements of the *International Building Code*.

OAR 837-041-0050 is not part of this code but is reproduced or paraphrased here for the reader's convenience.

OAR 837-041-0050 defines the rules for abatement, repair or discontinuance of use or occupancy of unsafe buildings and specifies the parameters that are used to determine the degree of fire and life hazard.

4601.3 Permits. Permits shall be required as set forth in Section 105.7 and the *International Building Code* and this code.

4601.4 Owner notification. Where a building is found to be in noncompliance, the *fire code official* shall duly notify the *owner* of the building. Upon receipt of such notice, the *owner* shall, subject to the following time limits, take necessary actions to comply with the provisions of one of the following:

1. Chapter 46, Fire and Life Safety Requirements for Existing Buildings, of the *Oregon Fire Code*.
2. Oregon Administrative Rule 837-041-0050, Fire Protection Regulations Relating to Existing Nonconforming, High Life Hazard Facilities.
3. Chapter 34, Existing Structures, of the *Oregon Structural Specialty Code*.

4601.4.1 Construction documents. *Construction documents* for the necessary *alterations* shall be completed within a time schedule *approved* by the *fire code official*.

4601.4.2 Completion of work. Work on the required *alterations* to the building shall be completed within a time schedule *approved* by the *fire code official*.

4601.4.3 Extension of time. The *fire code official* is authorized to grant necessary extensions of time when it can be shown that the specified time periods are not physically practical or pose an undue hardship. The granting of an extension of time for compliance shall be based on the showing of good cause and subject to the filing of an acceptable systematic plan of correction with the *fire code official*.

SECTION 4602 DEFINITIONS

4602.1 Definition. The following word and term shall, for the purpose of this chapter and as used elsewhere in this code, have the meaning shown herein.

EXISTING. Buildings, facilities or conditions that are already in existence and constructed prior to the adoption of a state building code regulation applicable at the time of construction.

SECTION 4603 FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

4603.1 Required construction. Existing buildings shall comply with not less than the minimum provisions specified in Table 4603.1 and as further enumerated in Sections 4603.2 through 4603.7.3.

The provisions of this chapter shall not be construed to allow the elimination of *fire protection systems* or a reduction in the level of fire safety provided in buildings constructed in accordance with previously adopted codes.

Exception: Group U occupancies.

4603.2 Elevator operation. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for fire-fighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3.

4603.3 Vertical openings. Interior vertical shafts, including but not limited to *stairways*, elevator hoistways, service and utility shafts, that connect two or more stories of a building, shall be enclosed or protected as specified in Sections 4603.3.1 through 4603.3.7.

4603.3.1 Group I occupancies. In Group I occupancies, interior vertical openings connecting two or more stories shall be protected with 1-hour fire-resistance-rated construction.

TABLE 4603.1
OCCUPANCY AND USE REQUIREMENTS

USE			OCCUPANCY CLASSIFICATION																					
			High rise	Atrium and covered mall	Under-ground building	A	B	E	F	H-1	H-2	H-3	H-4	H-5	I-1	I-2	I-3	I-4	M	R-1	R-2	R-3	R-4	S
SECTION																								
4603.2	R	—	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
4603.3.1	R	—	R	—	—	—	—	—	—	—	—	—	—	R	R	R	R	R	—	—	—	—	—	—
4603.3.2	R	—	R	R	R	R	R	R	R	R	R	R	R	—	—	—	—	—	R	R	R	—	R	R
4603.3.3	R	—	R	R	R	R	R	R	R	R	R	R	R	—	—	—	—	—	R	R	R	—	R	R
4603.3.4	—	R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4603.3.5	—	—	—	—	R	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—
4603.3.6	—	—	—	R	—	R	R	R	R	R	R	R	R	R	R	R	R	R	—	R	R	R	R	R
4603.3.7	—	—	—	R	—	R	R	R	R	R	R	R	R	R	R	R	R	R	—	R	R	R	R	R
4603.4	—	—	—	R	—	—	R	—	—	R	R	—	—	—	—	—	—	—	R	—	—	—	—	—
4603.5	R	—	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	—	R	R
4603.6.1	—	—	—	—	—	R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4603.6.2	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—	—	—	—	—	—
4603.6.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—	—	—	—	—
4603.6.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—	—	—	—
4603.6.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—
4603.6.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—
4603.6.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—
4603.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	R	R	R	R	—
4604.4	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

R = The building is required to comply.

4603.3.2 Three to five stories. In other than Group I occupancies, interior vertical openings connecting three to five stories shall be protected by either 1-hour fire-resistance-rated construction or an *automatic sprinkler system* shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

Exceptions:

1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.
3. Vertical opening protection is not required for escalators.

4603.3.3 More than five stories. In other than Group I occupancies, interior vertical openings connecting more than five stories shall be protected by 1-hour fire-resistance-rated construction.

Exceptions:

1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.
3. Vertical opening protection is not required for escalators.

4603.3.4 Atriums and covered malls. In other than Group I occupancies, interior vertical openings in a covered mall building or a building with an atrium shall be protected by either 1-hour fire-resistance-rated construction or an *automatic sprinkler system* shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

Exceptions:

1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.

4603.3.5 Escalators in Group B and M occupancies. Escalators creating vertical openings connecting any number of stories shall be protected by either 1-hour fire-resistance-rated construction or an automatic fire sprinkler system in accordance with Section 903.3.1.1 installed throughout the building, with a draft curtain and closely spaced sprinklers around the escalator opening.

4603.3.6 Escalators connecting four or fewer stories. In other than Group B and M occupancies, escalators creating vertical openings connecting four or fewer stories shall be protected by either 1-hour fire-resistance-rated construction or an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 shall be installed throughout the building, and a draft curtain with closely spaced sprinklers shall be installed around the escalator opening.

4603.3.7 Escalators connecting more than four stories. In other than Group B and M occupancies, escalators creating vertical openings connecting five or more stories shall be protected by 1-hour fire-resistance-rated construction.

4603.4 Sprinkler systems. An *automatic sprinkler system* shall be provided in existing buildings in accordance with Sections 4603.4.1 and 4603.4.2.

4603.4.1 Pyroxylin plastics. An *automatic sprinkler system* shall be provided throughout existing buildings where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds (45 kg). Vaults located within buildings for the storage of raw pyroxylin shall be protected with an *approved automatic sprinkler system* capable of discharging 1.66 gallons per minute per square foot (68 L/min/m²) over the area of the vault.

4603.4.2 Group I-2. An *automatic sprinkler system* shall be provided throughout existing Group I-2 *fire areas*. The sprinkler system shall be provided throughout the floor where the Group I-2 occupancy is located, and in all floors between the Group I-2 occupancy and the *level of exit discharge*.

4603.5 Standpipes. Existing structures with occupied floors located more than 50 feet (15 240 mm) above or below the lowest level of fire department vehicle access shall be equipped with standpipes installed in accordance with Section 905. The standpipes shall have an *approved* fire department connection with hose connections at each floor level above or below the lowest level of fire department access. The *fire code official* is authorized to approve the installation of manual standpipe systems to achieve compliance with this section where the responding fire department is capable of providing the required hose flow at the highest standpipe outlet.

4603.6 Fire alarm systems. An *approved* fire alarm system shall be installed in existing buildings and structures in accordance with Sections 4603.6.1 through 4603.6.7 and provide occupant notification in accordance with Section 907.6 unless other requirements are provided by other sections of this code.

Exception: Occupancies with an existing, previously *approved* fire alarm system.

4603.6.1 Group E. A fire alarm system shall be installed in existing Group E occupancies in accordance with Section 907.2.3.

Exceptions:

1. A manual fire alarm system is not required in a building with a maximum area of 1,000 square feet (93 m²) that contains a single classroom and is located no closer than 50 feet (15 240 mm) from another building.
2. A manual fire alarm system is not required in Group E occupancies with an *occupant load* less than 50.

4603.6.2 Group I-1. An automatic fire alarm system shall be installed in existing Group I-1 residential care/assisted living facilities in accordance with Section 907.2.6.1.

Exception: Manual fire alarm boxes in resident or patient sleeping areas shall not be required at *exits* if located at all nurses' control stations or other constantly attended staff locations, provided such stations are visi-

ble and continuously accessible and that travel distances required in Section 907.5.2 are not exceeded.

4603.6.3 Group I-2. An automatic fire alarm system shall be installed in existing Group I-2 occupancies in accordance with Section 907.2.6.2.

Exception: Manual fire alarm boxes in resident or patient sleeping areas shall not be required at *exits* if located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.5.2.1 are not exceeded.

4603.6.4 Group I-3. An automatic and manual fire alarm system shall be installed in existing Group I-3 occupancies in accordance with Section 907.2.6.3.

4603.6.5 Group R-1. A fire alarm system and smoke alarms shall be installed in existing Group R-1 occupancies in accordance with Sections 4603.6.5.1 through 4603.6.5.2.1.

4603.6.5.1 Group R-1 hotel and motel manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 hotels and motels more than three stories or with more than 20 *sleeping units*.

Exceptions:

1. Buildings less than two stories in height where all *sleeping units*, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each *sleeping unit* has direct access to a *public way*, *exit court* or yard.
2. Manual fire alarm boxes are not required throughout the building when the following conditions are met:
 - 2.1. The building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2;
 - 2.2. The notification appliances will activate upon sprinkler water flow; and
 - 2.3. At least one manual fire alarm box is installed at an *approved* location.

4603.6.5.1.1 Group R-1 hotel and motel automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 hotels and motels throughout all interior *corridors* serving sleeping rooms not equipped with an *approved*, supervised sprinkler system installed in accordance with Section 903.

Exception: An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *sleeping units* and where each *sleeping unit* has a *means of egress* door opening

directly to an *exit* or to an exterior *exit access* that leads directly to an *exit*.

4603.6.5.2 Group R-1 boarding and rooming houses manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 boarding and rooming houses.

Exception: Buildings less than two stories in height where all *sleeping units*, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each *sleeping unit* has direct access to a *public way*, *exit court* or yard.

4603.6.5.2.1 Group R-1 boarding and rooming houses automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 boarding and rooming houses throughout all interior *corridors* serving *sleeping units* not equipped with an *approved*, supervised sprinkler system installed in accordance with Section 903.

Exception: Buildings equipped with single-station smoke alarms meeting or exceeding the requirements of Section 907.2.10.1 and where the fire alarm system includes at least one manual fire alarm box per floor arranged to initiate the alarm.

4603.6.6 Group R-2. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-2 occupancies more than three stories in height or with more than 16 *dwelling* or *sleeping units*.

Exceptions:

1. Where each living unit is separated from other contiguous living units by *fire barriers* having a *fire-resistance rating* of not less than 0.75 hour, and where each living unit has either its own independent *exit* or its own independent stairway or ramp discharging at grade.
2. A separate fire alarm system is not required in buildings that are equipped throughout with an *approved* supervised *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and having a local alarm to notify all occupants.
3. A fire alarm system is not required in buildings that do not have interior *corridors* serving *dwelling units* and are protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that *dwelling units* either have a *means of egress* door opening directly to an exterior *exit access* that leads directly to the *exits* or are served by open-ended *corridors* designed in accordance with Section 1023.6, Exception 4.

4603.6.7 Group R-4. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-4 residential care/assisted living facilities in accordance with Section 907.2.10.

4603.7 Single- and multiple-station smoke alarms. Single- and multiple-station smoke alarms shall be installed in existing Group R occupancies and in *dwelling*s not classified as Group R occupancies in accordance with Sections 4603.7.1 through 4603.7.3.

4603.7.1 Where required. Existing Group R occupancies and *dwelling*s not classified as Group R occupancies not already provided with single-station smoke alarms shall be provided with single-station smoke alarms. Installation shall be in accordance with Section 907.2.10, except as provided in Sections 4603.7.2 and 4603.7.3.

4603.7.2 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling* or *sleeping unit*, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

Exceptions:

1. Interconnection is not required in buildings that are not undergoing *alterations*, repairs or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where *alterations* or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or *basement* available which could provide access for interconnection without the removal of interior finishes.

4603.7.3 Power source. Single-station smoke alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exceptions:

1. Smoke alarms are permitted to be solely battery operated in existing buildings where no construction is taking place.
2. Smoke alarms are permitted to be solely battery operated in buildings that are not served from a commercial power source.
3. Smoke alarms are permitted to be solely battery operated in existing areas of buildings undergoing *alterations* or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure, unless there is an attic, crawl

space or *basement* available which could provide access for building wiring without the removal of interior finishes.

4603.8 Special provisions for educational occupancies. In educational occupancies constructed prior to October 1, 2004, rooms used for kindergarten, first and second grade pupils and daycares shall not be located above or below the first story.

Exceptions:

1. Basements or stories having floor levels located within 4 feet (1219 mm), measured vertically, from adjacent ground level at the point of exit, provided the basement or story has exterior exit doors at that level.
2. In buildings equipped with an automatic sprinkler system throughout, rooms used for kindergarten, first and second grade children or for a day-care purpose may be located on the second story, provided there are at least two exterior exit doors for the exclusive use of such occupants.

SECTION 4604 MEANS OF EGRESS FOR EXISTING BUILDINGS

4604.1 General. *Means of egress* in existing buildings shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.21, and the building code that applied at the time of construction. Where the provisions conflict, the most restrictive provision shall apply. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.21 and, in addition, shall have a life safety evaluation prepared, consistent with the requirements of Section 104.7.2. The life safety evaluation shall identify any changes to the *means of egress* that are necessary to provide safe egress to occupants and shall be subject to review and approval by the *fire code official*. The building shall be modified to comply with the recommendations set forth in the *approved* evaluation. See also OAR 837, Division 41.

OAR 837, Division 41 is not part of this code but is reproduced or paraphrased here for the reader's convenience.

OAR 837, Division 41 regulates exitway protection.

4604.2 Elevators, escalators and moving walks. Elevators, escalators and moving walks shall not be used as a component of a required *means of egress*.

Exceptions:

1. Elevators used as an *accessible means of egress* where allowed by Section 1007.4.
2. Previously *approved* escalators and moving walks in existing buildings.

4604.3 Exit sign illumination. *Exit* signs shall be internally or externally illuminated. The face of an *exit* sign illuminated from an external source shall have an intensity of not less than 5

foot-candles (54 lux). Internally illuminated signs shall provide equivalent luminance and be *listed* for the purpose.

Exception: *Approved* self-luminous signs that provide evenly illuminated letters shall have a minimum luminance of 0.06 foot-lamberts (0.21 cd/m²).

4604.4 Power source. Where emergency illumination is required in Section 4604.5, *exit* signs shall be visible under emergency illumination conditions.

Exception: *Approved* signs that provide continuous illumination independent of external power sources are not required to be connected to an emergency electrical system.

4604.5 Illumination emergency power. The power supply for *means of egress* illumination shall normally be provided by the premises' electrical supply. In the event of power supply failure, illumination shall be automatically provided from an emergency system for the following occupancies where such occupancies require two or more *means of egress*:

1. Group A having 50 or more occupants.

Exception: Assembly occupancies used exclusively as a place of worship and having an *occupant load* of less than 300.

2. Group B buildings three or more stories in height, buildings with 100 or more occupants above or below a *level of exit discharge* serving the occupants or buildings with 1,000 or more total occupants.
3. Group E in interior stairs, *corridors*, windowless areas with student occupancy, shops and laboratories.
4. Group F having more than 100 occupants.

Exception: Buildings used only during daylight hours which are provided with windows for natural light in accordance with the *International Building Code*.

5. Group I.
6. Group M.

Exception: Buildings less than 3,000 square feet (279 m²) in gross sales area on one story only, excluding mezzanines.

7. Group R-1.

Exception: Where each *sleeping unit* has direct access to the outside of the building at grade.

8. Group R-2.

Exception: Where each *dwelling unit* or *sleeping unit* has direct access to the outside of the building at grade.

9. Group R-4.

Exception: Where each *sleeping unit* has direct access to the outside of the building at ground level.

4604.5.1 Emergency power duration and installation. In other than Group I-2, the emergency power system shall provide power for not less than 60 minutes and consist of storage batteries, unit equipment or an on-site generator. In

Group I-2, the emergency power system shall provide power for not less than 90 minutes and consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 604.

4604.6 Guards. Guards complying with this section shall be provided at the open sides of *means of egress* that are more than 30 inches (762 mm) above the floor or grade below.

4604.6.1 Height of guards. Guards shall form a protective barrier not less than 42 inches (1067 mm) high.

Exceptions:

1. Existing guards on the open side of stairs shall be not less than 30 inches (760 mm) high.
2. Existing guards within *dwelling units* shall be not less than 36 inches (910 mm) high.
3. Existing guards in assembly seating areas.

4604.6.2 Opening limitations. Open guards shall have balusters or ornamental patterns such that a 6-inch-diameter (152 mm) sphere cannot pass through any opening up to a height of 34 inches (864 mm).

Exceptions:

1. At elevated walking surfaces for access to, and use of, electrical, mechanical or plumbing systems or equipment, guards shall have balusters or be of solid materials such that a sphere with a diameter of 21 inches (533 mm) cannot pass through any opening.
2. In occupancies in Group I-3, F, H or S, the clear distance between intermediate rails measured at right angles to the rails shall not exceed 21 inches (533 mm).
3. *Approved* existing open guards.

4604.7 Minimum required egress width. The means of egress width shall not be less than as required by the code under which constructed but not less than as required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by the factors in Table 4604.7 and not less than specified elsewhere in this section. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

4604.8 Size of doors. The minimum width of each door opening shall be sufficient for the *occupant load* thereof and shall provide a clear width of not less than 28 inches (711 mm). Where this section requires a minimum clear width of 28 inches (711 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 28 inches (711 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. *Means of egress* doors in an occupancy in Group I-2 used for the move-

**TABLE 4604.7
EGRESS WIDTH PER OCCUPANT SERVED**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM ^a	
	Stairways (inches per occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress components (inches per occupant)
Occupancies other than those listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, H-3 and H-4	Not permitted	Not permitted	0.3	0.2
Institutional: I-2	Not permitted	Not permitted	0.3	0.2

For SI: 1 inch = 25.4 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

ment of beds shall provide a clear width not less than 41.5 inches (1054 mm). The height of doors shall not be less than 80 inches (2032 mm).

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required *means of egress* in occupancies in Groups R-2 and R-3.
2. Door openings to storage closets less than 10 square feet (0.93 m²) in area shall not be limited by the minimum width.
3. Width of door leafs in revolving doors that comply with Section 1008.1.4.1 shall not be limited.
4. Door openings within a *dwelling unit* shall not be less than 78 inches (1981 mm) in height.
5. Exterior door openings in *dwelling units*, other than the required *exit* door, shall not be less than 76 inches (1930 mm) in height.
6. *Exit access* doors serving a room not larger than 70 square feet (6.5 m²) shall be not less than 24 inches (610 mm) in door width.

4604.9 Opening force for doors. The opening force for interior side-swinging doors without closers shall not exceed a 5-pound (22 N) force. For other side-swinging, sliding and folding doors, the door latch shall release when subjected to a force of not more than 15 pounds (66 N). The door shall be set in motion when subjected to a force not exceeding 30 pounds (133 N). The door shall swing to a full-open position when subjected to a force of not more than 50 pounds (222 N). Forces shall be applied to the latch side.

4604.10 Revolving doors. Revolving doors shall comply with the following:

1. A revolving door shall not be located within 10 feet (3048 mm) of the foot or top of stairs or escalators. A dispersal area shall be provided between the stairs or escalators and the revolving doors.
2. The revolutions per minute for a revolving door shall not exceed those shown in Table 4604.10.
3. Each revolving door shall have a conforming side-hinged swinging door in the same wall as the revolving door and within 10 feet (3048 mm).

Exceptions:

1. A revolving door is permitted to be used without an adjacent swinging door for street-floor

elevator lobbies provided a stairway, escalator or door from other parts of the building does not discharge through the lobby and the lobby does not have any occupancy or use other than as a means of travel between elevators and a street.

2. Existing revolving doors where the number of revolving doors does not exceed the number of swinging doors within 20 feet (6096 mm).

**TABLE 4604.10
REVOLVING DOOR SPEEDS**

INSIDE DIAMETER	POWER-DRIVEN-TYPE SPEED CONTROL(RPM)	MANUAL-TYPE SPEED CONTROL (RPM)
6' 6"	11	12
7' 0"	10	11
7' 6"	9	11
8' 0"	9	10
8' 6"	8	9
9' 0"	8	9
9' 6"	7	8
10' 0"	7	8

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

4604.10.1 Egress component. A revolving door used as a component of a *means of egress* shall comply with Section 4604.10 and all of the following conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the required egress capacity.
2. Each revolving door shall be credited with not more than a 50-person capacity.
3. Revolving doors shall be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing.

4604.11 Stair dimensions for existing stairs. Existing stairs in buildings shall be permitted to remain if the rise does not exceed 8¹/₄ inches (210 mm) and the run is not less than 9 inches (229 mm). Existing stairs can be rebuilt.

Exception: Other stairs *approved by the fire code official*.

4604.11.1 Dimensions for replacement stairs. The replacement of an existing *stairway* in a structure shall not be required to comply with the new *stairway* requirements

of Section 1009 where the existing space and construction will not allow a reduction in pitch or slope.

4604.12 Winders. Existing winders shall be allowed to remain in use if they have a minimum tread depth of 6 inches (152 mm) and a minimum tread depth of 9 inches (229 mm) at a point 12 inches (305 mm) from the narrowest edge.

4604.13 Circular stairways. Existing circular stairs shall be allowed to continue in use provided the minimum depth of tread is 10 inches (254 mm) and the smallest radius shall not be less than twice the width of the *stairway*.

4604.14 Stairway handrails. *Stairways* shall have handrails on at least one side. Handrails shall be located so that all portions of the *stairway* width required for egress capacity are within 44 inches (1118 mm) of a handrail.

Exception: *Aisle* stairs provided with a center handrail are not required to have additional handrails.

4604.1.4.1 Height. Handrail height, measured above stair tread nosings, shall be uniform, not less than 30 inches (762 mm) and not more than 42 inches (1067 mm).

4604.15 Slope of ramps. Ramp runs utilized as part of a *means of egress* shall have a running slope not steeper than one unit vertical in 10 units horizontal (10-percent slope). The slope of other ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

4604.16 Width of ramps. Existing ramps are permitted to have a minimum width of 30 inches (762 mm) but not less than the width required for the number of occupants served as determined by Section 1005.1.

4604.17 Fire escape stairs. Fire escape stairs shall comply with Sections 4604.17.1 through 4604.17.7.

4604.17.1 Existing means of egress. Fire escape stairs shall be permitted in existing buildings but shall not constitute more than 50 percent of the required *exit* capacity.

4604.17.2 Protection of openings. Openings within 10 feet (3048 mm) of fire escape stairs shall be protected by opening protectives having a minimum $\frac{3}{4}$ -hour *fire-resistance rating*.

Exception: In buildings equipped throughout with an *approved automatic sprinkler system*, opening protection is not required.

4604.17.3 Dimensions. Fire escape stairs shall meet the minimum width, capacity, riser height and tread depth as specified in Section 4604.11.

4604.17.4 Access. Access to a fire escape from a *corridor* shall not be through an intervening room. Access to a fire escape stair shall be from a door or window meeting the criteria of Section 1005.1. Access to a fire escape stair shall be directly to a balcony, landing or platform. These shall be no higher than the floor or window sill level and no lower than 8 inches (203 mm) below the floor level or 18 inches (457 mm) below the window sill.

4604.17.5 Materials and strength. Components of fire escape stairs shall be constructed of noncombustible materi-

als. Fire escape stairs and balconies shall support the dead load plus a live load of not less than 100 pounds per square foot (4.78 kN/m²). Fire escape stairs and balconies shall be provided with a top and intermediate handrail on each side. The *fire code official* is authorized to require testing or other satisfactory evidence that an existing fire escape stair meets the requirements of this section.

4604.17.5.1 Examination. Fire escape stairs, balconies, rails and ladders shall be examined for structural adequacy and safety in accordance with Section 4604.17.5 and the Oregon Structural Specialty Code by a *registered design professional* or others acceptable to the *fire code official* every five years, or as required by the *fire code official*. An inspection report shall be submitted to the *fire code official* after such examination.

Exception: The testing interval for fire escapes that have all connections replaced, re-enforced, and/or duplicated may be extended as specified by the design professional if approved by the *fire code official*.

4604.17.5.2 Unsafe/imminent hazard condition. When a fire escape component is determined to be in an unsafe/imminent hazard condition, the *fire code official* and *building official* shall be notified immediately. Where required, the building shall either be evacuated or an *approved fire watch* shall be provided until the fire escape has been repaired and approved for use by the building code official.

4604.17.5.3 Posting of fire escape conditions. Each fire escape shall have signage indicating current conditions posted at the lowest balcony or as directed by the *fire code official*. Signage shall be clearly visible. Legible, and weather resistant and indicate:

1. Condition of fire escape.
2. Date of posting
3. Site address.
4. Other as directed by the *fire code official*.

4604.17.5.3.1 Signage. Approved signage and/or other notice shall be provided for any fire escape taken out of service. Fire escape stairs and balconies shall have signage posted at each entry point to the fire escape. Fire escape ladders shall be posted with signage at the roof and at the lowest balcony or as directed by the *fire code official*.

4604.17.6 Termination. The lowest balcony shall not be more than 18 feet (5486 mm) from the ground. Fire escape stairs shall extend to the ground or be provided with counterbalanced stairs reaching the ground.

Exception: For fire escape stairs serving 10 or fewer occupants, an *approved* fire escape ladder is allowed to serve as the termination.

4604.17.7 Maintenance. Fire escapes stairs, balconies, rails and ladders shall be kept clear, unobstructed and in working order at all times. They shall be maintained free of corrosion.

4604.18 Corridors. *Corridors* serving an *occupant load* greater than 30 and the openings therein shall provide an effective barrier to resist the movement of smoke. Transoms, louvers, doors and other openings shall be kept closed or self-closing.

Exceptions:

1. *Corridors* in occupancies other than in Group H, which are equipped throughout with an *approved automatic sprinkler system*.
2. Patient room doors in *corridors* in occupancies in Group I-2 where *smoke barriers* are provided in accordance with the *International Building Code*.
3. *Corridors* in occupancies in Group E where each room utilized for instruction or assembly has at least

one-half of the required *means of egress* doors opening directly to the exterior of the building at ground level.

4. *Corridors* that are in accordance with the *International Building Code*.

4604.18.1 Corridor openings. Openings in *corridor* walls shall comply with the requirements of the *International Building Code*.

Exceptions:

1. Where 20-minute fire door assemblies are required, solid wood doors at least 1.75 inches (44 mm) thick or insulated steel doors are allowed.
2. Openings protected with fixed wire glass set in steel frames.

**TABLE 4604.18.2
COMMON PATH, DEAD-END AND TRAVEL DISTANCE LIMITS (by occupancy)**

OCCUPANCY	COMMON PATH LIMIT		DEAD-END LIMIT		TRAVEL DISTANCE LIMIT	
	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered (feet)
Group A	20/75 ^a	20/75 ^a	20 ^b	20 ^b	200	250
Group B	75	100	50	50	200	250
Group E	75	75	20	50	200	250
Group F-1, S-1 ^d	75	100	50	50	200	250
Group F-2, S-2 ^d	75	100	50	50	300	400
Group H-1	25	25	0	0	75	75
Group H-2	50	100	0	0	75	100
Group H-3	50	100	20	20	100	150
Group H-4	75	75	20	20	150	175
Group H-5	75	75	20	20	150	200
Group I-1	75	75	20	50	200	250
Group I-2 (Health Care)	NR ^e	NR ^e	NR	NR	150	200 ^c
Group I-3 (Detention and Correctional— Use Conditions II, III, IV, V)	100	100	NR	NR	150 ^c	200 ^c
Group I-4 (Day Care Centers)	NR	NR	20	20	200	250
Group M (Covered Mall)	75	100	50	50	200	400
Group M (Mercantile)	75	100	50	50	200	250
Group R-1 (Hotels)	75	75	50	50	200	250
Group R-2 (Apartments)	75	75	50	50	200	250
Group R-3 (One- and Two- Family)	NR	NR	NR	NR	NR	NR
Group R-4 (Residential Care/Assisted Living)	NR	NR	NR	NR	NR	NR
Group U	75	75	20	50	200	250

For SI: 1 foot = 304.8 mm.

a. 20 feet for common path serving 50 or more persons; 75 feet for common path serving less than 50 persons.

b. See Section 1028.9.5 for dead-end aisles in Group A occupancies.

c. This dimension is for the total travel distance, assuming incremental portions have fully utilized their allowable maximums. For travel distance within the room, and from the room exit access door to the exit, see the appropriate occupancy chapter.

d. See the *International Building Code* for special requirements on spacing of doors in aircraft hangars.

e. Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (93 m²) shall have at least two exit access doors placed a distance apart equal to not less than one-third of the length of the maximum overall diagonal dimension of the patient sleeping room or suite to be served, measured in a straight line between exit access doors.

NR = No requirements.

3. Openings covered with 0.5-inch (12.7 mm) gypsum wallboard or 0.75-inch (19.1 mm) plywood on the room side.
4. Opening protection is not required when the building is equipped throughout with an *approved automatic sprinkler system*.

4604.18.2 Dead ends. Where more than one *exit* or *exit access* doorway is required, the *exit access* shall be arranged such that dead ends do not exceed the limits specified in Table 4604.18.2.

Exception: A dead-end passageway or *corridor* shall not be limited in length where the length of the dead-end passageway or *corridor* is less than 2.5 times the least width of the dead-end passageway or *corridor*.

4604.18.3 Exit access travel distance. *Exits* shall be located so that the maximum length of *exit access* travel, measured from the most remote point to an *approved exit* along the natural and unobstructed path of egress travel, does not exceed the distances given in Table 4604.18.2.

4604.18.4 Common path of egress travel. The *common path of egress travel* shall not exceed the distances given in Table 4604.18.2.

4604.19 Stairway discharge identification. A *stairway* in an *exit* enclosure which continues below its *level of exit discharge* shall be arranged and marked to make the direction of egress to a *public way* readily identifiable.

Exception: Stairs that continue one-half story beyond their *levels of exit discharge* need not be provided with barriers where the *exit discharge* is obvious.

4604.20 Exterior stairway protection. Exterior *exit* stairs shall be separated from the interior of the building as required in Section 1026.6. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. Separation from the interior of the building is not required for buildings that are two stories or less above grade where the *level of exit discharge* serving such occupancies is the first story above grade.
2. Separation from the interior of the building is not required where the exterior *stairway* is served by an exterior balcony that connects two remote exterior *stairways* or other *approved exits*, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the opening not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an exterior *stairway* located in a building or structure that is permitted to have unenclosed interior *stairways* in accordance with Section 1022.
4. Separation from the interior of the building is not required for exterior *stairways* connected to open-ended *corridors*, provided that:

4.1. The building, including *corridors* and stairs, is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

4.2. The open-ended *corridors* comply with Section 1018.

4.3. The open-ended *corridors* are connected on each end to an exterior *exit stairway* complying with Section 1026.

4.4. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees occurs, a clear opening of not less than 35 square feet (3 m²) or an exterior *stairway* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

4604.21 Minimum aisle width. The minimum clear width of *aisles* shall be:

1. Forty-two inches (1067 mm) for *aisle* stairs having seating on each side.

Exception: Thirty-six inches (914 mm) where the *aisle* serves less than 50 seats.

2. Thirty-six inches (914 mm) for stepped *aisles* having seating on only one side.

Exception: Thirty inches (760 mm) for catchment areas serving not more than 60 seats.

3. Twenty inches (508 mm) between a stepped *aisle* handrail or guard and seating when the *aisle* is subdivided by the handrail.

4. Forty-two inches (1067 mm) for level or ramped *aisles* having seating on both sides.

Exception: Thirty-six inches (914 mm) where the *aisle* serves less than 50 seats.

5. Thirty-six inches (914 mm) for level or ramped *aisles* having seating on only one side.

Exception: Thirty inches (760 mm) for catchment areas serving not more than 60 seats.

6. Twenty-three inches (584 mm) between a stepped stair handrail and seating where an *aisle* does not serve more than five rows on one side.

4604.22 Stairway floor number signs. Existing stairs shall be marked in accordance with Section 1022.8.

4604.23 Egress path markings. Existing buildings of Groups A, B, E, I, M and R-1 having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be provided with luminous *egress* path markings in accordance with Section 1024.

Exception: Open, unenclosed stairwells in historic buildings designated as historic under a state or local historic preservation program.