

6. Open sides of raised platforms shall be guarded in accordance with s. ILHR 51.162.

(c) *Temporary platforms.* Temporary raised platforms may be provided and shall be designed and constructed to support the dead loads and live loads as specified in ss. ILHR 53.10 and 53.11. A temporary raised platform to be used for more than 30 consecutive days shall conform with par. (b), the requirements for permanent raised floors.

(4) **EXTERIOR WALL CONSTRUCTION.** (a) All exterior walls which are in contact with the soil shall be of masonry or concrete except that all-weather wood foundations are permitted if constructed in accordance with the provisions outlined in s. ILHR 53.64.

(b) Exposed exterior walls between the first floor structural system and grade shall be of masonry or concrete except as follows:

1. Walls may be constructed of material other than masonry or concrete providing the following conditions are satisfied:

a. The construction shall meet the requirements of Table 51.03-A for specified class of construction.

Note: Buildings utilizing wood foundations in accordance with the provisions outlined in s. ILHR 53.64 will be limited to 3 levels (including 2-story and basement, 2-story and ground floor, or 3-story with treated wood frost wall and no crawl space or basement).

(c) 1. Except as provided in subd. 2., fenestration in-fill panels in the exterior walls of existing buildings of types 1, 2, 3, 5A and 5B construction meeting the percentage of openings requirements of Table 51.03-B shall be of noncombustible construction.

2. a. The studding and structural framework may be of fire retardant treated wood.

b. The interior finish of the in-fill panel may be of combustible materials providing the materials comply with the provisions of s. ILHR 51.07.

c. Foam plastic insulation complying with the provisions of s. ILHR 51.06 may be used in the construction of the in-fill panels provided the foam plastic is protected on both sides by an approved thermal barrier as specified in s. ILHR 51.06 (3).

3. In-fill panels located in exterior walls required to have a fire-resistive rating need not be constructed to provide the hourly rating provided the panels satisfy the requirements of this section.

4. The exterior finish of the in-fill panel shall comply with the requirements of Table 51.03-A for the class of construction of the building in which the panel is located except that the exterior finish of in-fill panels located in buildings of types 5A or 5B construction need not be of masonry.

(5) **INTERIOR WALL CONSTRUCTION.** (a) Openings in partitions and interior bearing walls shall be protected if such walls serve as required building division, fire division or fire separation walls.

1. Openings shall be protected by approved fire door or fire window assemblies as specified in ss. ILHR 51.047 and 51.048, or fire damper or fire curtain door assemblies as specified in s. ILHR 64.42.

Note: Openings in walls other than those specified above need not be protected except to satisfy structural integrity end point for the time specified.

(7) **BUILDING LOCATIONS.** (a) When the distance between buildings located on the same property is less than 10 feet, the following shall apply:

1. Where the combined gross area for these buildings, including the area between buildings, is less than that allowable for one building, the exterior wall shall satisfy minimum requirements listed for class of construction in Table 51.03-A.

a. Buildings classified as wood frame under s. ILHR 51.03 (7) or (8) shall have exterior walls with a fire-resistive rating of not less than that required for these buildings when satisfying the 10 feet to 30 feet distance to property line shown in Table 51.03-A.

2. Where the combined gross area for these buildings, including the area between buildings, is greater than that allowable for one building, one of the opposing walls shall be not less than a 4-hour fire-resistive rated fire division wall or building division wall, whichever applies. Where buildings are of different classes of construction, the lesser allowable gross area shall apply.

(b) Buildings on the same property may be located less than 30 feet from each other with no restriction on the percentage of wall openings, provided the combined gross area of the buildings, including the area between the buildings, is no more than the area permitted by the occupancy chapters of this code.

(8) **INTERIOR BALCONY OR MEZZANINE.** Interior balconies or mezzanine floors shall have fire-resistive ratings as required for the story in which it is located.

(9) **IMBEDDED MATERIAL.** (a) *Structural members.* Pipes, wires, cables, ducts or other service equipment shall not be imbedded in the required fire-resistive protection of any structural member.

(b) *Assemblies.* Pipes, wires, cables, metallic ducts or other service equipment may be imbedded or installed:

1. As permitted in approved fire-rated assemblies; or

2. In fire-resistive assemblies of 2-hour rating or less in buildings of Types No. 4 to 8 construction. The pipe, wire, cable, metallic duct or other service equipment shall be contained within the fire-resistive rated assembly.

(10) **EXPOSED EXTERIOR STRUCTURAL COLUMNS AND FRAMING.** The required fire-resistive hourly rating may be omitted on noncombustible columns and framing when the building does not exceed 2 stories and the fire separation to the center of a street, or to the property line or buildings on the same property, is greater than 30 feet.

(11) **PROTECTION OF VERTICAL OPENINGS.** (a) Except as specified in ss. ILHR 54.08, 55.09, 57.08 and in par. (b), stairways, elevator shafts and other vertical openings, which serve 2 or more floor levels, shall be enclosed with fire-resistive rated construction equal to or better than the hourly ratings specified in Table 51.03-A. Stairways serving as required means of egress shall comply with the requirements specified in s. ILHR 51.18.

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(b) *Exceptions.* Vertical openings need not be enclosed under the following conditions:

1. Serving and contained within individual living units;
2. Serving raised or depressed areas, open mezzanines or open balconies contained within a single story;
3. Serving 2 floor levels in buildings containing chs. ILHR 54 to 58 or 60 to 62 occupancies provided:
 - a. The opening is not a required means of egress; and
 - b. The opening is separated from any exit access corridor or exit stairway by fire-resistive rated construction with at least the hourly rating specified for fire-rated enclosures in line 20 of Table 51.03-A; or
4. As permitted by chs. ILHR 54 through 62.

(c) Openings in required exit enclosures shall be limited to exit doors serving public passageways and corridors or serving floors occupied by a single tenant.

(12) **PARAPET WALLS.** (a) Parapet walls shall be provided on exterior walls closer than 10 feet to a property line or to other buildings on the same property except as exempted under subd. 4. Parapet walls shall satisfy the following requirements:

1. Parapets shall not be less than 2 feet in height;
2. The minimum thickness of masonry parapets shall be 8 inches;
3. Parapets shall have fire-resistive ratings as specified for exterior walls in Table 51.03-A; and
4. Parapets are not required on exterior walls which front streets and alleys or where exterior walls connect with roofs of noncombustible construction. For the purposes of this requirement, built-up roof coverings of a class A rating, shall be considered as being noncombustible.

(b) All parapet walls shall be properly coped with noncombustible weatherproof material.

(13) **FIRE DIVISION WALLS.** (a) Fire division walls shall have not less than a 4-hour fire-resistive rating as specified in s. ILHR 51.04 and shall comply with one of the following conditions:

1. a. Except as provided in subpar. b, the fire division wall shall extend 3 feet above the roof. Where a difference in roof elevations occurs at the fire division, the parapet height shall be measured from the lower roof elevation.
- b. Where a difference in roof elevations occurs at the fire division wall in buildings of Type No. 4 construction with combustible exterior walls, Type No. 7 or No. 8 construction, the fire division wall shall extend above the lower roof to the high roof elevation and shall be unperforated. In all cases, the fire division wall shall extend at least 3 feet above the lower roof elevation.

2. The wall shall connect and make tight contact with roof decks of at least 2-hour fire-resistive noncombustible construction on both sides of the wall; or

3. The wall shall connect and make tight contact with roofs of noncombustible construction on both sides of the walls, and the roofs shall be noncontinuous at the wall.

For the purposes of this requirement, built-up roof coverings, including those of a class A rating, shall be considered as being combustible and do not conform with the conditions of this requirement.

(b) Structural members shall not continue through or over the fire wall.

(c) 1. All openings in fire division walls shall be protected by fire-resistive door assemblies as specified in s. ILHR 51.047.

2. The total area of all openings in any fire division wall in any one story shall not exceed 25% of the area of the wall in that story.

(14) **DETERMINATION OF NUMBER OF STORIES.** For purposes of establishing the maximum allowable stories in the various classes of construction stated in s. ILHR 51.03, the number of stories shall be determined on the following basis:

Note 1: See Appendix A for further explanatory material.

Note 2: See ch. ILHR 69 for definition of "story" relative to accessibility issues.

(a) The first floor shall be determined first and this level shall satisfy the following conditions:

1. Is the lowest floor having one or more required exits for that floor and for any floor above or below; and

a. If condition stated in subd. 1. is not satisfied, the highest floor level shall be considered the first floor.

2. a. The elevation of the first floor and the sills of all required exit discharges from the first floor shall be not more than 6 feet above an exit discharge grade.

b. Existing buildings to be licensed as child day care centers or to be converted to sheltered facilities for battered women shall comply with the requirements specified in ss. ILHR 57.015 and 60.105.

(b) An interior balcony or mezzanine shall be considered as a story if:

1. The net floor area of the balcony or mezzanine exceeds one-third of the net main area enclosed within exterior walls or fire division walls, or both; or

2. The net floor area of the balcony or mezzanine exceeds one-third of the net floor area enclosed with the walls of a single living unit or single tenant space.

(c) Penthouse with a total area that exceeds 50% of the total roof area shall be counted as a story.

(d) Total number of stories shall include the first floor plus all stories above and those stories determined by pars. (b) and (c).

1. Floor levels satisfying the definition of basement, ground floor, attic, interior balcony and mezzanine floor, unless otherwise stated, shall not be counted as a story.

(15) **DECORATIVE COMBUSTIBLE MATERIALS.** Any combustible materials applied to a required noncombustible exterior surface of "0" hourly rated construction or better shall not exceed the surface area percentage specified in Table 51.02, within any 100 lineal feet of the building.

TABLE 51.02

Separation of Building From Property Line or Other Buildings ¹	Maximum Surface Area Percentage ²
Less than 10 feet	0
10 to 20 feet	10
20 to 30 feet	20
More than 30 feet	30

Footnotes to Table 51.02

1. The maximum surface area percentage along a street is 30, regardless of the separation.

2. Fire-retardant treated wood may be applied to all required noncombustible exterior surfaces of "0" hourly rated construction without limit.

(16) PROJECTIONS INTO SETBACKS. (a) Unenclosed terraces, slabs or stoops, without roofs or walls, may be located within required setbacks providing they are not greater than 7 inches above adjacent grade at any point and are in contact with the ground to prevent an exposed cavity which could promote fire or smoke. Grade changes from these appendages shall be of a gradual slope.

(b) Open cantilevers, including but not limited to roof overhangs and eaves, may project 2 feet into the required setback from property lines. These cantilevers shall not project into the required setbacks between buildings on the same property.

(c) Enclosed or partially enclosed appendages, including but not limited to decks, porches or ramps, shall not project into the required setbacks from property lines or buildings on the same property.

(18) ACCESS TO ATTIC AND ROOF. (a) *Attic.* Every attic compartment shall be provided with access from the floor level immediately below it. The access opening shall be at least 20 by 30 inches and shall be located above the stair landing or in an accessible location.

Note: A single access point to the attic from the floor level immediately below will be acceptable if all the attic compartments are interconnected with access openings of at least 20 by 30 inches.

(b) *Roof.* 1. Except as provided in subd. 2., all buildings more than 2 stories, or 25 feet in height, where the slope of the roof is less than 3 in 12, shall be provided with a means of access to the main roof from the floor level immediately below. The roof opening shall be at least 20 by 30 inches and shall be provided with a permanent ladder or stairway.

2. Roof access shall not be required in 3 story buildings without attic space.

(19) ATTIC COMPARTMENTALIZATION. (a) Except as provided in par. (b), attics of combustible construction shall be divided into areas not greater than 3,200 square feet by firestopping as specified in s. ILHR 53.63 (1) (d).

1. Compartmentalization shall extend into the eave and soffit areas to provide a complete separation between compartments.

2. Panels for access openings in compartment walls shall be equipped with self-closing devices and shall normally be kept closed.

(b) Attic compartmentalization need not be provided in buildings completely protected, including the attic space, by an automatic fire sprinkler system.

(20) CLASS OF CONSTRUCTION SEPARATION. (a) Except as provided in par. (b) and s. ILHR 62.93, portions of buildings of different classes of construction, as specified in s. ILHR 51.03, shall be separated by fire division walls as specified in s. ILHR 51.02 (13) or the building classification will be reduced to the lowest class of construction utilized.

(b) A health care facility, parts of which are different types of construction as described in s. ILHR 51.03, shall be classified as the lowest type of construction utilized, unless the different parts of the building are separated from one another by a separation wall in which case each part of the building shall be individually classified as to the appropriate type of construction. A separation wall:

1. Shall have a minimum fire-resistive rating of 2 hours;
2. Shall extend at least to the underside of the roof deck of the lowest part of the building to be separated; and
3. May not have structural members extend through or over it.

(21) HEIGHT LIMITATIONS. (a) Except as provided in par. (b), the height of buildings shall be limited as specified in the appropriate occupancy chapter for the building and as specified in s. ILHR 51.03 and Table 51.03-A for the class of construction utilized.

(b) The height limitations specified in s. ILHR 51.03 may be increased by one story and 10 feet in height in buildings, other than buildings within the scope of chs. ILHR 58, 60 and 61, when the building is completely protected by an automatic fire sprinkler system and the system is supervised and monitored as specified in s. ILHR 51.23 (9).

Note: See chs. ILHR 54 to 61 for specific application of height increases. Tables 54.01-2, 57.02-3 and 59.12-2 already include the one story height increase.

(22) FIRE RESISTIVE RATINGS. (a) Except as provided in par. (b), the fire resistive ratings specified in chs. ILHR 50 to 64 may be reduced in rating by one hour to a minimum of one hour in all buildings which are completely protected by an automatic fire sprinkler system and the system is supervised and monitored as specified in s. ILHR 51.23 (9).

(b) The fire resistive rating may not be reduced for the following:

1. The fire-resistive ratings specified in ch. ILHR 58;
2. The fire-resistive ratings specified for stairway enclosures in buildings more than 3 stories in height;
3. The fire-resistive ratings for buildings more than 60 feet in height; and
4. The fire-resistive ratings for buildings where increases in building area or building height due to automatic fire sprinkler system protection have been utilized.

5. The fire-resistive rating for elevator machine rooms shall not be reduced from the 2 hour fire-resistive rating as specified in ch. ILHR 18.

(23) WOOD BLOCKING IN NONCOMBUSTIBLE RATED ASSEMBLIES AND ROOF ASSEMBLIES. Combustible wood blocking may be installed:

(a) At the intersection of roofs with exterior walls or parapet walls to fasten roof edging, roof membranes, facias and roofing expansion joints; and

(b) In noncombustible rated wall assemblies to fasten window frames, door frames, sinks, toilets and urinals, toilet partitions, grab bars, book shelves, and other similar components. In these applications, the amount of wood blocking shall not exceed that required to secure or fasten the item to the assembly.

History: Cr. Register, June, 1972, No. 198, eff. 1-1-73; r. (9) and (10), renum. (3) to be (4), (4), (5), (6), (7), (8) to be (6), (7), (8), (9), (10), am. (2) (a) cr. (3), (5), (11), (12), (13) and (14), Register, September, 1973, No. 213, eff. 10-1-73; am. (14) (d), Register, February, 1974, No. 218, eff. 3-1-74; r. and recr. (12) (a); am. (13) (c), Register, May, 1974, No. 221, eff. 8-1-74; cr. (11) (c) and (15), Register, July, 1974, No. 223, eff. 8-1-74; cr. (16) and (17), Register, December, 1974, No. 228, eff. 1-1-75; am. (5) (a) 1 and (14) (e) 1, cr. (18), Register, December, 1975, No. 240, eff. 1-1-76; am. (16) (b), Register, July, 1976, No. 247, eff. 8-1-76; cr. (2) (c), Register, December, 1976, No. 252, eff. 1-1-77; am. (15) and cr. (19), Register, December, 1977, No. 264, eff. 1-1-78; r. (16) and (17), Register, May, 1978, No. 269, eff. 7-1-78; am. (4) (a), (18) and (19), cr. (15) (a) and (20), Register, December, 1978, No. 276, eff. 1-1-79; am. (11) (a) and (c) (intro.), (13) and (19), r. and recr. (6) (b), Register, January, 1980, No. 289, eff. 2-1-80; r. and recr. (11), am. (14) (a) 2, r. (14) (a) 3, Register, December, 1981, No. 312, eff. 1-1-82; reprinted to correct error in (14) (a) 2, Register, February, 1982, No. 314; am. (11) (a) and (19), Register, October, 1982, No. 322, eff. 11-1-82; cr. (4) (c) and (13) (c), r. (6), am. (11) (b) 3, (14) (a) 2, and (20), Register, December, 1983, No. 336, eff. 1-1-84; am. (4) (c) 2, (9), (11) (b) 3, (13) (c) 2, (14) (b) and (18) (b), r. and recr. (13) (a) 1, Register, August, 1985, No. 356, eff. 1-1-86; emerg. cr. (21) and (22), eff. 9-6-86; cr. (21) and (22); Register, November, 1986, No. 371, eff. 12-1-86; am. (3) (a), (12) (a) 4, (13) (a) 3, cr. (3) (c) and (d), r. (4) (b) 1, b. and (14) (d), r. and recr. (11) (b) 3, (14) (a) 2, a., (b) and (20) (b), renum. (14) (e) to be (14) (d) and am., Register, February, 1991, No. 423, eff. 4-1-91; renum. (3) (a), (c) and (d) to be (a), (b) and (c) and am. (a), (b) 1, intro., b. and 3, and (c), am. (7) (a) 1. and 2. and (9), cr. (7) (b), (16) and (23), r. and recr. (15), Register, January, 1994, No. 457, eff. 2-1-94; cr. (22) (b) 5., Register, March, 1994, No. 459, eff. 4-1-94.

ILHR 51.03 Classes of construction standards. (1) FIRE RESISTIVE TYPE A (NO. 1). (a) A building is of fire-resistive construction if all the walls, partitions, piers, columns, floors, ceilings, roof and stairs are built of noncombustible material, with a fire-resistive rating as specified in Table 51.03-A.

1. Concealed draft openings in columns, walls and partitions shall be firestopped with noncombustible material at each floor level.

(b) A building of this classification shall be limited in height in accordance with Table 51.03-C.

(c) Stairs and stair platforms shall be constructed of noncombustible material.

(d) Doors and windows may be of wood except as otherwise specified in s. ILHR 51.02 (5), Table 51.03-B, ss. ILHR 51.17, 51.18, 51.19 and 51.20, or in the occupancy chapters of this code.

(e) Bays, oriels, and similar exterior projections from the walls shall be constructed of material with fire-resistive ratings as required for exterior walls.

(f) The wall construction behind a mansard shall extend to the underside of the roof deck and shall have a fire-resistive rating of not less than that specified for exterior walls in Table 51.03-A.

(g) Penthouses and other roof structures shall have enclosing walls of noncombustible construction and roof framing and coverings shall be equal to that specified in Table 51.03-A. Wood cooling towers are permitted.

(j) In required fire-resistive floor and roof assemblies one electric outlet box, not exceeding 16 square inches in area, may be installed in such ceilings in each 90 square feet of ceiling area. Recessed electric fixtures shall have protection boxes built above the fixture, constructed of approved fire-resistant material of rating equal to that of the ceiling, to cover the opening in case fixture is displaced. Duct openings in ceilings shall be protected by fire dampers.

(2) **FIRE-RESISTIVE TYPE B (NO. 2).** (a) A building is of fire-resistive construction if all the walls, partitions, piers, columns, floors, ceilings, roof and stairs are built of noncombustible material, with a fire-resistive rating as specified in Table 51.03-A.

(b) A building of this classification shall be limited in height in accordance with Table 51.03-C.

(c) Where roof framing is greater than 20 feet above the floor, or highest level of any balcony, roof decks may be:

1. Matched or splined wood roof decking of not less than 2 inches in nominal thickness;

2. Solid lumber not less than 3 inches in nominal thickness, set on edge securely fastened together;

3. Approved 1 inch thick plywood with exterior glue, tongue and groove with all end joints staggered and butting on centers of beams spaced not over 4 feet apart; or

4. Other forms of roof decks, if of noncombustible material.

(d) Stairs and stair platforms shall be constructed of noncombustible material.

(e) Doors and windows may be of wood except as otherwise specified in s. ILHR 51.02 (5), Table 51.03-B, ss. ILHR 51.17, 51.18, 51.19 and 51.20, or in the occupancy chapters of this code.

(f) Bays, oriels, and similar exterior projections from the walls shall be constructed of material with fire-resistive ratings as required for exterior walls.

(g) The wall construction behind a mansard shall extend to the underside of the roof deck and shall have a fire-resistive rating of not less than that specified for exterior walls in Table 51.03-A.

(h) Penthouse and other roof structures shall have enclosing walls of noncombustible construction and roof framing and coverings shall be equal to that specified in Table 51.03-A. Wood cooling towers are permitted.

(3) **METAL FRAME — PROTECTED (NO. 3).** (a) A building is of metal frame protected construction if the structural parts and enclosing walls are of metal, or metal in combination with other noncombustible materials, with time resistance ratings as set forth in Table 51.03-A.

(b) A building of this classification shall be limited in height in accordance with Table 51.03-C.

(c) Stairs and stair platforms shall be constructed of noncombustible material.

(d) Bays, oriels and similar exterior projections from the walls shall be constructed of material with fire-resistive ratings as required for exterior walls.

(b) When exit doors are not readily visible to occupants, directional exit signs shall be provided in exit access corridors and other appropriate locations so to indicate the direction and way of egress.

(6) (a) The required aggregate width of exits from a level shall be determined by using the full occupant load of that level, plus the percentage effects of the occupant loads of adjacent levels (above and below) which exit through it as follows:

Note: See Appendix A for further explanatory material.

1. 50% of the occupant load of each first-adjacent level; and

2. 25% of the occupant load of each second-adjacent level.

(b) The width shall be based upon the following ratios:

1. Types No. 1 through No. 4 construction unsprinklered, 40 inches per 100 persons;

2. Types No. 5 through No. 8 construction unsprinklered, 50 inches per 100 persons;

3. Types No. 1 through No. 4 construction sprinklered, 30 inches per 100 persons; or

4. Types No. 5 through No. 8 construction sprinklered, 40 inches per 100 persons.

Note: The determination of exit width for health care facilities is specified in s. ILHR 58.12 (2) and (3) and takes precedence over this section.

(c) The required aggregate width of exits from assembly seating facilities shall comply with the requirements of s. ILHR 62.75 (4).

History: 1-2-56; am. Register, December, 1962, No. 84, eff. 1-1-63; am. (5) and cr. (7), Register, November, 1963, No. 95, eff. 12-1-63; r. and recr., Register, October, 1967, No. 142, eff. 11-1-67; am. (7) (j), Register, May, 1968, No. 149, eff. 6-1-68; r. and recr. (7), Register, December, 1970, No. 180, eff. 1-1-71; r. and recr. (3), Register, February, 1971, No. 182, eff. 3-1-71; am. (7) (a) 1., Register, September, 1973, No. 213, eff. 10-1-73; r. (7), r. and recr. (6), Register, December, 1974, No. 228, eff. 1-1-75; emerg. cr. (3) (b) 1., eff. 6-20-75; cr. (3) (a) 1. and (3) (b) 1., Register, November, 1975, No. 239, eff. 12-1-75; am. (4), Register, December, 1977, No. 264, eff. 1-1-78; am. (2) and (3) (b) 1., Register, December, 1978, No. 276, eff. 1-1-79; am. (4), Register, January, 1980, No. 289, eff. 2-1-80; am. (2), r. and recr. (3) (a), (intro.), cr. (6) (c), Register, December, 1981, No. 312, eff. 1-1-82; cr. (3) (c), Register, December, 1983, No. 336, eff. 1-1-84; r. and recr. (3), Register, January, 1985, No. 349, eff. 2-1-85; am. (3) (a) and (4), cr. (3) (a) and (f), Register, August, 1985, No. 356, eff. 1-1-86; am. (2), (3) (a), renum. (3) (f) to be (3) (g), cr. (3) (f), r. and recr. (5), Register, February, 1991, No. 423, eff. 4-1-91; am. (1), (2) and (3) (e), cr. (3) (h), Register, January, 1994, No. 457, eff. 2-1-94.

ILHR 51.151 Exit distribution. All spaces which can accommodate more than 25 persons shall be provided with a minimum of 2 exits, 2 exit access doors or a combination of both which are located to provide the best possible egress from the room or suite. If exit access doors are used, the exit access corridors shall lead to 2 or more separate exits.

Note 1: See Appendix A for further explanatory material.

Note 2: See occupancy chs. ILHR 54 to 62 for acceptable types of exits and exit accesses and exceptions.

History: Cr. Register, August, 1985, No. 356, eff. 1-1-86.

ILHR 51.152 Egress configuration. (1) EGRESS DIRECTIONS. (a) Where 2 directions of egress are required, and are provided by doors opening into corridors, the angle between the 2 directions shall not be less than 90°.

(b) An angle between directions of egress within a space shall be satisfactory providing passageways are maintained to corridor access points separated a distance of at least one-half of the diagonal of the area served, or 20 feet, whichever is greater.

(2) **RECESSED DOORS.** Where 2 directions of egress are required, and are provided by recessed doors opening into the corridors, the doors shall be recessed no more than 3 feet into an alcove serving only that exit access, and the alcove width shall be at least 3 feet.

Note: See Appendix A for further explanatory material.

History: Cr. Register, December, 1993, No. 456, eff. 1-1-94.

ILHR 51.16 Stairways and ramps. (1) DEFINITIONS. (a) "Stairway" means one or more flights of steps, and the necessary platforms or landings connecting them, to form a continuous passage from one elevation to another, including exterior porches, platforms and steps.

(b) "Ramp" means a sloping floor or walk and necessary platforms or landings connecting them to form a continuous passage from one elevation to another.

(2) **REQUIRED AGGREGATE WIDTH.** (a) The required aggregate width of stairway or ramp exits from any level shall be as specified in s. ILHR 51.15 (6).

(b) In no case shall the minimum width of an exit stair or ramp be less than that specified in sub. (3).

(c) Under no circumstances shall stairways or ramps decrease in width in the line of travel toward the exit.

(3) **MINIMUM WIDTH.** (a) Except as provided in pars. (b) and (c), every required exit stairway or ramp under chs. ILHR 54 to 62 shall be not less than 3 feet 8 inches wide, except as provided in the occupancy chapters, of which not more than 4 inches on each side may be occupied by a handrail. The clear dimension between handrails, or stringers, shall not be less than 3 feet 0 inches.

(b) Nonrequired stairways or ramps need not conform to the width requirements specified in chs. ILHR 50 to 64.

(c) A required stairway or ramp serving a space with an occupant load not greater than 25 persons shall have a width of not less than 3 feet.

(4) **RISERS, TREADS AND RAMP SLOPES.** Risers and treads shall be designed and provided in accordance with the following:

(a) 1. Except as provided in subd 2., all stairways and steps shall have a rise of not more than 7 inches measured from tread to tread, and a tread of not less than 11 inches, measured from nosing to nosing of tread. The slope of a tread may not exceed $\frac{1}{4}$ inch per foot for the depth of the tread. Treads and risers shall be uniform in any one flight. Winders may not be used. Open risers may not be used;

2. Existing stairways and steps in existing buildings, where a change in occupancy is occurring, may remain in use if they were constructed in accord with the requirements of this code relating to the proposed occupancy, that were in effect at the time of that construction.

Note 1: The department recommends that steps be proportioned so the sum of 2 risers and a tread, exclusive of its nosing or projection, should be not less than 24 inches or more than 25 inches.

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Note 2: The department may accept nonstandard exit stairways serving unoccupied areas, such as equipment mezzanines or platforms, and similar areas, if approved in writing.

Note 3: Round or smooth nosings are recommended as they are not difficult to negotiate for individuals with restrictions in the knee, ankle or hip, or with artificial legs or long leg braces.

(b) The edges of all treads and the edges of all stairway landings shall be finished with a nonslippery surface not less than 3 inches in width;

(c) Where an exit door leads to an outside platform or sidewalk, the level of the platform or sidewalk shall not be more than 7/8 inches below the doorsill;

(d) Every stairway flight shall have at least 3 risers, except as provided in par. (c) and ss. ILHR 54.03 (1) (b), 55.09 (3) (b) and 57.07 (1); and

(e) There shall be no more than 22 risers in any one flight.

(f) Slopes of ramps located in required means of egress shall comply with ch. ILHR 69. Slopes of ramps not located in required means of egress shall not exceed 1 foot of rise in 6 feet of run.

(g) Ramps and landings shall be finished with a slip-resistant surface.

(5) **STAIRWAY AND RAMP LANDINGS AND PLATFORMS.** (a) 1. Except as provided in subd. 2., if a door is provided at the head or foot or both of a stairway or ramp, a landing or platform shall be placed between the door and the stairway or ramp regardless of the direction of swing of the door.

2. Platforms may be omitted for ramps 6 foot or less in length.

(b) Every landing or platform shall be at least as wide as the stairway or ramp, measured at right angles to the direction of travel. Every landing or platform must have a length of at least 3 feet, measured in the direction of travel.

(6) **CURVED STAIRS.** Interior or exterior curved stairs used as required exits shall meet all the requirements for stairways. Curved stairs shall have a radius of at least 25 feet at the interior edge of the tread.

(7) **SPIRAL STAIRS.** Spiral stairways may be permitted as specifically allowed by the occupancy chapters of this code. Such spiral stairs shall provide a clear walking area measuring at least 22 inches from the outer edge of the supporting column to the inner edge of the handrail and shall have treads at least 7 inches in width at a point one foot from the narrow end of the tread, and a uniform riser height of not more than 9 1/4 inches.

(8) **SPACES BENEATH STAIRS AND RAMPS.** Spaces beneath the steps, stairs, ramps, landings and platforms which are within a vertical enclosure under s. ILHR 51.02 (11) may not be used for any other purpose, unless that space is separated from the enclosure by the same degree of fire resistive construction required for the enclosure.

(b) Spaces beneath steps, stairs, ramps, landings and platforms which provide a means of egress, but not en-

closed under s. ILHR 51.02 (11), may not be used for any other purpose, unless;

1. The space is separated from steps, ramps, landings and platforms by at least one hour fire resistive construction; or

2. The space and the steps, ramps, landings and platforms are all contained within an individual living unit under the scope of ch. ILHR 57.

History: 1-2-56; am. (2); (2) (a); (2) (b); Register, June, 1956, No. 6, eff. 7-1-56; r. and recr. Register, September, 1959, No. 45, eff. 10-1-59; r. (4) (b), renum. (c) to be (b), and cr. (5), Register, February, 1971, No. 182, eff. 3-1-71; am. (2) (a), Register, September, 1973, No. 213, eff. 10-1-73; r. and recr. Register, December, 1974, No. 228, eff. 1-1-75; am. (4) (a) and cr. (10), Register, December, 1977, No. 264, eff. 1-1-78; cr. (7) (a), Register, December, 1978, No. 276, eff. 1-1-79; r. (5) to (7), renum. (8) to (10) to be (5) to (7) and am. (7), Register, January, 1980, No. 289, eff. 2-1-80; r. and recr. (1), am. (2), (3) (a) and (5), renum. (3) (b) to be (3) (b) 1. and am., cr. (3) (b) 2., (4) (f) and (g), Register, August, 1985, No. 356, eff. 1-1-86; renum. (3) (b) 1. to be (3) (b), r. (3) (b) 2., am. (4) (a) (intro.), (d) and (7), cr. (8), Register, February, 1991, No. 423, eff. 4-1-91; am. (3) (a), cr. (3) (c) and (4) (a) 2., renum. (4) (a) to be (4) (a) 1. and am., r. (5) (c), Register, January, 1994, No. 457, eff. 2-1-94; r. and recr. (4) (f), Register, November, 1994, No. 467, eff. 12-1-94.

ILHR 51.161 Handrails. (1) **WHERE REQUIRED.** Handrails shall be provided in all of the following conditions unless otherwise specified in the occupancy chapters of this code.

(a) On either side for all interior stairways of more than 3 risers and for all ramps overcoming a change in elevation of more than 24 inches.

(b) On the open side of any stairway with more than 3 risers and on the open side of any ramp overcoming a change in elevation of more than 24 inches.

(c) On both sides of interior stairways or ramps 5 feet or more in width.

(d) To divide interior stairways or ramps more than 8 feet wide into widths at least 3 feet 8 inches but less than 8 feet.

(e) On both sides of exterior stairways with more than 3 risers and on both sides of exterior ramps overcoming a change of elevation of more than 24 inches, either of which are an integral part of the building.

(f) To divide exterior stairways or ramps, either of which are an integral part of the building and more than 25 feet wide into approximately equal widths not less than 3 feet 8 inches but not greater than 25 feet.

(g) The requirements specified in pars. (a) to (f) do not apply to ramps having a slope less than 1:20.

Note: See s. ILHR 52.04 (7) (c) for handrail requirements for ramps used to provide barrier free access.

(h) On fire escapes as specified in s. ILHR 51.20 (8).

(2) **LOADING.** All handrails shall be designed and constructed to withstand a load of 200 pounds applied in any direction at any point.

(3) **HEIGHT.** The top of the handrail gripping surface shall be mounted between 34 inches and 38 inches above the nosing of the treads on stairways or above the surface of ramps.

Note: See s. ILHR 51.20 (8) for handrail requirements for fire escapes.