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DEPT. OF INDUSTRY, LABOR & HUMAN RELATIONS 61  
Definitions and standards ILHR 51

cific application based on the submittal and written acceptance of data from approved diversified tests.

Note: See s. ILHR 50.19 for additional information pertaining to product approval.

History: Cr. Register, May, 1979, No. 281, eff. 6-1-79; cr. (3) (b) 8. a., Register, May, 1980, No. 293, eff. 6-1-80; cr. (3) (b) 11., Register, December, 1981, No. 312, eff. 1-1-82; r. and recr. Register, December, 1983, No. 336, eff. 1-1-84.

**ILHR 51.065 Light-transmitting plastics.** (1) **SCOPE.** (a) The requirements of this section shall apply to the quality and methods of application of plastics for use as light-transmitting materials in buildings and structures. When used as interior finish, plastic materials shall meet the requirements of s. ILHR 51.07.

(b) 1. Approved light-transmitting plastic shall meet one of the following combustibility classifications:

a. CC 1 — Plastic materials which have a burning extent of one inch per minute or less when tested in nominal .060 inch thickness or in the thickness intended for use by ASTM D 635-81, Test for Flammability of Self-Supporting Plastics; or

b. CC 2 — Plastic materials which have a burning rate of 2.5 inches per minute or less when tested in nominal .060 inch thickness or in the thickness intended for use by ASTM D 635-81, Test for Flammability of Self-Supporting Plastics.

2. Light-transmitting plastic materials may be of any class as defined by this section. Before any light-transmitting plastic material may be approved for use, the manufacturer shall file with the department technical data which relates to the proposed use of the material. The data shall include the pertinent physical, mechanical and thermal properties, such as but not limited to weather resistance, expansion coefficient and combustibility characteristics. The department shall determine the adequacy of the data. Where the department determines that the material is satisfactory for the intended use, approval of the material shall be granted subject to the limitations specified in this section.

Note: See s. ILHR 50.19 for additional information.

(c) All light-transmitting plastic materials approved for use under this section or s. ILHR 50.19 shall be identified by the trade formula, number or name.

(2) **DEFINITIONS.** For the purpose of this section, the following definitions shall apply.

(a) "Approved light-transmitting plastic" means a single layer or multi-layer composite consisting of thermoplastic, thermosetting or reinforced plastic material which has a self-ignition temperature 650° F. or greater when tested in accordance with Standard Method of Test for Ignition Properties of Plastics, ASTM D 1929-77, a smoke density rating no greater than 450 when tested in accordance with Standard Method of Test for Surface Burning Characteristics of Building Materials, ASTM E 84-81a in the way intended for use, or a smoke density rating no greater than 75 when tested in the thickness intended for use by Standard Method for Measuring the Density of Smoke from the Burning or Decomposition of Plastics, ASTM D 2843-77. Multi-layer composite

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material shall comply as a composite in the configuration intended for use.

(b) "Glass fiber reinforced plastic" means plastic reinforced with glass fiber having not less than 20% of glass fibers by weight.

(c) "Interior secondary glazing system" means construction consisting of a glazed panel of approved light-transmitting plastic positioned on the interior side of a primary window set in an exterior wall which is designed primarily to control energy losses through exterior windows or glazed panels and is not intended for use as primary or exterior windows.

(d) "Light diffusing system" means a suspended construction consisting in whole or in part of lenses, panels, grids or baffles suspended below independently mounted electrical lighting sources.

(e) "Plastic glazing" means single glazing plastic materials which are glazed or set in a frame or sash and not held by mechanical fasteners which pass through the glazing material.

(f) "Plastic roof panels" means single glazing plastic materials which are fastened to structural members or to structural panels or sheathing and which are used as light-transmitting media in the plane of the roof.

(g) "Plastic wall panels" means single glazing plastic materials which are fastened to structural members or to structural panels or sheathing and which are used as light-transmitting media in exterior walls.

(h) "Thermoplastic material" means a plastic material which is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

(i) "Thermosetting material" means a plastic material which is capable of being changed into a substantially non-reformable product when cured.

(3) **GLAZING OF UNPROTECTED OPENINGS.** (a) *General.* Doors, sash and openings which are not required to be protected with fire window or glass block assemblies may be glazed with approved light-transmitting plastic in the following occupancies:

Note: See Table 51.03-B for additional requirements pertaining to windows and wall openings.

1. Schools and Other Places of Instruction under ch. ILHR 56;
2. Residential Occupancies under ch. ILHR 57; and
3. All other occupancies under chs. ILHR 54, 55, 58, 59, 60, 61 and 62, subject to the following requirements:

a. Except as provided in par. (b), the area of such light-transmitting plastic glazing may not exceed 25% of the wall face of the story in which it is installed;

b. Except as provided in par. (b) 2., the area of a pane of light-transmitting plastic glazing installed above the first story shall not exceed 16 square feet where the vertical dimension of a pane may not exceed 4 feet and there shall be a spandrel constructed of materials meeting the requirements for exterior walls of s. ILHR 51.03 and Table 51.03-A for the

class of construction utilized between stories measuring a minimum of 3 feet in the vertical dimension;

c. Except as provided in par. (b) 2., approved light-transmitting plastics shall not be installed more than 75 feet above grade level;

d. Combinations of light-transmitting plastic glazing and light-transmitting plastic wall panels shall be subject to the area, height and percentage limitations and separation requirements applicable to the class of plastics as specified in sub. (4).

(b) *Exceptions.* 1. Approved light-transmitting plastic glazing may be installed in areas up to 50% of the wall area of each story in structures less than 75 feet in height which are provided on each floor above the first floor with fire canopies projecting at least 3 feet from the surface of the wall and extending at least 3 feet horizontally beyond the edge of the opening above, or equivalent. The size and dimension requirements specified in par. (a) 3. b. shall not apply.

2. Where an approved automatic fire sprinkler system is provided, the permissible area of light-transmitting plastic glazing permitted by par. (a) 3. a. may be increased to a maximum of 50 percent of the wall face of the story in which the glazing is installed and shall be exempt from the requirements specified in par. (a) 3. b. and c.

(4) **EXTERIOR WALL PANELS.** (a) *General.* Subject to requirements specified in par. (b), approved light-transmitting plastics may be used as wall panels in exterior walls not requiring a fire-resistive rating in all occupancies except the following:

1. Theaters and Assembly Halls under ch. ILHR 55;

2. Health Care, Correctional and Detention Facilities under ch. ILHR 58; and

3. All high hazard occupancies.

(b) *Area and separation limitations.* 1. Except as provided in par. (c), area limitation and separation requirements of exterior light-transmitting plastic wall panels shall be as specified in Table 51.065-1.

2. Vertical spandrel wall separation constructed of materials meeting the requirements for exterior walls of s. ILHR 51.03 and Table 51.03-A for the class of construction utilized between stories shall be:

a. Three feet for CC 1 plastic wall panels; or

b. Four feet for CC 2 plastic wall panels.

TABLE 51.065-1

AREA LIMITATION AND SEPARATION  
REQUIREMENTS FOR LIGHT-TRANSMITTING PLASTIC WALL PANELS \*

Set-Back Distance to Property Line or Other Walls on Same Property	Class of Plastic	Maximum % Area of Exterior Walls in Plastic Panels	Maximum Single Area (Square Feet)	Minimum Separation of Panels (Feet)	
				Vertical	Horizontal
5 feet or less	—	NP	NP	—	—
5 feet or more but less than 10 feet	CC 1	10	50	8	4
	CC 2	NP	NP	—	—
10 feet or more but less than 30 feet	CC 1	25	90	6	4
	CC 2	15	70	8	4
Over 30 feet	CC 1	50	Not limited	3	0
	CC 2	25	100	6	3

N.P. means not permitted

\* The requirements of this Table do not apply to greenhouses. See ch. ILHR 62, subch. VI.

(c) *Exceptions.* 1. In structures which are provided on any floor above the first with continuous horizontal projections extending at least 36 inches from the surface of the wall in which light-transmitting plastic wall panels are installed, there need be no vertical separation at that floor except that provided by the vertical thickness of the projection.

2. Where an approved automatic fire sprinkler system is provided in the building, the maximum percent area of light-transmitting plastic panels in the exterior wall and the maximum square feet of single area given in Table 51.065-1 may be increased 100% but in no case may the area of light-transmitting plastic wall panels exceed 50% of the wall area.

(5) **ROOF PANELS.** (a) *General.* Except in chs. ILHR 55 and 58 occupancies and high hazard occupancies, approved light-transmitting plastic roof panels may be installed as follows, subject to the requirements specified in par. (b):

1. In roofs of buildings protected by an approved automatic fire sprinkler system;
2. Where the roof is not required to have a fire resistance rating; or
3. Where the light-transmitting plastic roof panels meet the requirements for roof coverings of the appropriate class of construction.

Note: See s. A52.015 for additional information regarding high hazard occupancies.

(b) *Limitations.* Except as provided in par. (c), the use of light-transmitting plastic roof panels shall be limited as follows:

1. Individual light-transmitting plastic roof panels or units shall be separated from each other by a distance of not less than 4 feet measured in a horizontal plane.

2. Where exterior wall openings are required to be protected, no light-transmitting plastic roof panels or units may be installed within 8 feet of such exterior wall.

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3. Light-transmitting plastic roof panels or units shall be limited in area and the aggregate area of panels shall be limited by a percentage of the floor area of the room or space sheltered in accordance with Table 51.065-2.

TABLE 51.065-2 \*  
 AREA LIMITATIONS FOR  
 LIGHT-TRANSMITTING PLASTIC ROOF PANELS AND SKYLIGHTS

Class of Plastic	Maximum Area Individual Unit or Panel (sq. ft.)	Maximum Aggregate Area (% of Floor Area)
CC 1	300	30
CC 2	100	25

\* The requirements of this table do not apply to greenhouses. See ch. ILHR 62, subch. VI.

(c) *Exceptions.* 1. One-story buildings not more than 16 feet in height and not exceeding 1200 square feet in area and not closer than 10 feet to another building are exempt from the limitations specified in par. (b).

2. Low-hazard use areas such as swimming pool shelters and similar structures, are exempt from the area limitations specified in par. (b) provided they do not exceed 5,000 square feet in projected floor area and are not closer than 10 feet to the property line or adjacent buildings.

Note: See s. A52.015 for additional information regarding low hazard occupancies.

(6) **SKYLIGHTS.** (a) *General.* Subject to the requirements of par. (b), skylight assemblies may be glazed with approved light-transmitting plastic in all but high hazard occupancies.

Note: See s. A52.015 for additional information regarding high hazard occupancies.

(b) *Limitations.* Except as provided in par. (c), the use of skylights with approved light-transmitting plastic glazing shall be limited as follows:

1. The light-transmitting plastic shall be mounted at least 4 inches above the plane of the roof on a curb construction consistent with that required for the class of construction of the building;

2. Dome-shaped skylights shall rise above the mounting flange a minimum distance equal to 10% of the maximum span of the dome but not less than 5 inches;

3. The edges of the light-transmitting plastic skylights or dome shall be protected by metal or noncombustible material;

4. Each skylight unit of CC 1 material may have a maximum of 300 square feet within the curb and each skylight unit of CC 2 material may have a maximum of 100 square feet within the curb;

5. The aggregate area of skylights may not exceed 33% when CC 1 materials are used, and 25% when CC 2 materials are used, of the floor area of the room or space sheltered by the roof in which they are installed;

6. Skylights shall be separated from each other by a distance of not less than 4 feet measured in a horizontal plane; and

7. Where exterior wall openings are required to be fire protected, no skylight may be installed within 6 feet of such exterior wall.

8. Combinations of light-transmitting plastic roof panels and skylights shall be subject to the area and percentage limitations and separation requirements as specified in sub. (5) (b).

(c) *Exceptions.* 1. The requirements of par. (b) shall not apply, if:

a. The building on which the skylights of approved light-transmitting plastic glazing are located is not more than one story in height, is located not less than 30 feet from a property line and any other building on the property, and the room or space sheltered by the skylight is not a means of egress, a ch. ILHR 58 occupancy, or a high hazard occupancy; or

b. The approved light-transmitting plastic material meets the roof cover requirements for the appropriate class of construction.

2. Except in chs. ILHR 55 and 58 occupancies and high hazard occupancies, the requirements specified in par. (b) 4. to 6. shall not apply to skylights with approved light-transmitting plastic glazing provided:

a. The skylight serves as a fire venting system approved by a petition for modification as specified in s. ILHR 50.25; or

b. The skylight is used in a building equipped with an approved automatic fire sprinkler system.

(7) LIGHT-DIFFUSING SYSTEMS. (a) *Light diffusers.* 1. Unless protected with an approved automatic fire sprinkler system, plastic light-diffusing systems may not be installed in:

a. Theaters and assembly halls under ch. ILHR 55;

b. Health care, correctional and detention facilities under ch. ILHR 58; and

c. High hazard occupancies.

Note: See s. A52.015 for additional information regarding high hazard occupancies.

2. Plastic light-diffuser panels shall be supported directly or indirectly from ceiling or roof construction by use of noncombustible hangers.

3. No plastic light-diffusing system may be installed in areas required to be equipped with automatic sprinklers unless appropriate tests by a recognized laboratory have shown that such system does not prevent effective operation of the sprinklers or unless sprinklers are located both above and below the light-diffusing system to give effective sprinkler protection.

4. Approved plastic materials for light-diffusing systems shall comply with s. ILHR 51.07 unless the plastic panels comply with the following:

a. Fall from their mounting at an ambient temperature of at least 200° F. below the self-ignition temperature of the plastic material as measured by ASTM D 1929-77;

b. Remain in place at an ambient room temperature of 175° F. for a period of not less than 15 minutes; and

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c. The maximum length of any single plastic panel does not exceed 10 feet and the maximum area of any single light diffuser does not exceed 30 square feet.

(b) *Electrical lighting fixtures.* Plastic light-transmitting panels and light-diffuser panels installed in approved electrical lighting fixtures shall comply with the requirements specified in par. (a) 4. a. to c.

(8) **EXTERIOR VENEER.** Approved light-transmitting plastic material may be installed as an exterior veneer for any building, provided:

(a) The plastic veneer may not be attached to any exterior wall to a height greater than 35 feet above grade;

(b) Sections of plastic veneer may not exceed 200 square feet in area; and

(c) Sections of plastic veneer shall be separated by a minimum of 4 feet vertically.

(9) **INTERIOR SECONDARY GLAZING SYSTEMS.** (a) Light-transmitting plastic materials used in interior secondary glazing systems shall comply with the requirements of s. ILHR 51.07 unless the approved plastic used in the interior secondary glazing system meets the following requirements:

1. The approved plastic used as the glazing falls from its mounting either with or without its frame or sash at an ambient temperature of at least 200° F. below the self-ignition temperature of the plastic material as measured by ASTM D 1929-77;

2. Interior secondary glazing system is not installed over windows required for egress unless approved tests have shown that the system does not interfere with egress from the window; and

3. The maximum length of any single plastic panel does not exceed 10 feet and the maximum area of any single panel does not exceed 30 square feet.

History: Cr. Register, December, 1983, No. 336, eff. 1-1-84.

**ILHR 51.07 Interior finishes.** (1) **SCOPE.** The requirements of this section apply to the interior finishes or surfaces of a building.

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Note #1: See s. ILHR 51.06 for the restrictions of foam plastics.

Note #2: Toxicity of the products of combustion is *not* included as a basis in determining the smoke developed criteria of this section. The smoke developed criteria is based solely upon the obscuration of light.

(2) **APPLICATION TO MATERIALS.** (a) Except as provided in par. (b), the classification of interior finish materials as specified in this section shall include the basic material used by itself or in combination with other materials.

(b) Subsequently applied paint or wall covering not exceeding 1/28 inch in thickness and classified 450 or less on the smoke test scale are exempt from the provisions of par. (a).

(3) **TRIM AND INCIDENTAL FINISH.** (a) Interior finish not in excess of 10% of the aggregate wall and ceiling areas of any room or space may be

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Class C materials in occupancies where interior finish of Class A or Class B is required.

(b) In addition to the other requirements of this section, foam plastic used as interior trim and incidental finish shall also comply with the following:

1. The minimum density is 20 pounds per cubic foot;
2. The maximum thickness of the trim is  $\frac{1}{2}$  inch and the maximum width is 4 inches;
3. The trim constitutes no more than 10% of the area of any wall or ceiling; and
4. The flame-spread rating does not exceed 75 when tested in accordance with ASTM E-84 and the smoke developed rating is not limited.

(4) EXPOSED CONSTRUCTION. (a) This section does not require the installation of interior finish, but where construction or fire protection materials are exposed in rooms or spaces used for the occupancies specified, the hazard from rate of flame spread of the exposed materials shall be not greater than that of the interior finish permitted for such occupancy or use.

(b) Exposed portions of structural members of Type No. 4-Heavy Timber Construction shall not be subject to the interior finish requirements of this section.

(5) USE OF INTERIOR FINISHES. Interior finish material shall be used in accordance with requirements specified in Table 51.07.



**TABLE 51.07**  
**MINIMUM INTERIOR FINISH REQUIREMENTS**

Occupancy	Required Exit Enclosures <sup>1</sup>		Exit Access <sup>1, 2</sup>		Rooms or Enclosed Spaces <sup>1,2</sup>	
	Walls & Ceilings <sup>4</sup>	Floor <sup>5</sup>	Walls & Ceilings <sup>4</sup>	Floor <sup>5</sup>	Walls & Ceilings <sup>4</sup>	Floor <sup>3,5</sup>
Ch. ILHR 54 Occupancies Other than Storage and Warehouses	A	II	A or B	II	A, B or C	DOC FE-16
Ch. ILHR 54 Storage and Warehouse Occupancies	A or B	DOC FF-16	A or B	DOC FF-16	A, B or C	DOC FF-16
Ch. ILHR 55 Places of Assembly	A	I	A	II	A or B <sup>7</sup>	DOC FF-16
Ch. ILHR 56 Places of Instruction	A	I	A or B	II	A, B or C	DOC FF-16
Ch. ILHR 57 Residential Occupancies	A	II	A or B	II	A, B or C	DOC FF-16
Ch. ILHR 58 Health Care and Places of Detention	SEE CHAPTER IND 58 FOR SPECIFIC REQUIREMENTS					
Ch. ILHR 59 Hazardous Occupancies	A	DOC FF-16	A or B	DOC FF-16	A, B or C	DOC FF-16
Ch. ILHR 60 Day Care Centers (20 Children or Less)	A or B	DOC FF-16	A or B	DOC FF-16	A, B or C	DOC FF-16
Ch. ILHR 60 Day Care Centers (More than 20 Children)	A	II	A or B	II	A, B or C	DOC FF-16
Ch. ILHR 62 Specialty Occupancies	A, B or C	DOC FF-16	A, B or C	DOC FF-16	A, B or C	DOC FF-16

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## Notes to Table 51.07

<sup>1</sup> Exposed portions of structural members of Type No. 4-Heavy Timber Construction are not subject to the requirements of this table.

<sup>2</sup> Where a complete automatic sprinkler system is installed, materials with an interior finish of Class B or C may be used in places where Class A or B materials, respectively, are required and floor finish materials with an interior finish of Class II or materials complying with the DOC FF-1-70 "pill test" may be used in places where Class I or II materials, respectively, are required.

<sup>3</sup> Requirements for rooms or enclosed spaces are based upon the spaces being separated from exit access corridors and exits by partitions extending from the floor to the ceiling. Where the room or enclosed space is not separated from the exit access corridor, the room or space is considered part of the exit access or the exit.

<sup>4</sup> Materials having napped, tufted, looped or similar surfaces, such as carpet, when applied on walls or ceilings shall meet the requirements for Class A interior finish.

<sup>5</sup> Wood, vinyl, linoleum, terrazzo, resilient and other approved finished floors or floor covering materials are exempt from the provisions of this table.

<sup>6</sup> All carpet manufactured for sale in the U.S. is required by federal regulations to comply with the DOC FF-1-70 "pill test" (16 CFR Para 1630). If a material other than carpet is used, the material should be shown to be resistant to flame propagation as a material which passes the DOC FF-1-70 test (minimum critical radiant flux of 0.04 watts/cm<sup>2</sup>).

<sup>7</sup> Class C interior finish materials may be used in places of assembly with a capacity of 400 persons or less.

(6) APPLICATION OF INTERIOR FINISH. (a) *Attachment*. Interior finish materials shall be applied or otherwise fastened in such a manner that they will not readily become detached when subjected to room temperature of 200° F. or less for 30 minutes, or otherwise become loose through changes in the setting medium from the effects of time or conditions or occupancy.

(b) *Application to structural elements*. 1. Interior finish materials applied to walls, ceilings or structural elements of a building or structure which are required to be of fire-resistive rated or noncombustible construction shall be applied directly against the exposed surface of such structural elements or to furring strips attached to such surfaces.

2. Where furring strips are used, all concealed spaces shall be firestopped into areas not greater than 10 square feet in area or 8 feet in any dimension.

(c) *Furred construction*. Where walls, ceilings or other structural elements are required to be of fire-resistive rated or noncombustible construction, and the interior finish is set out or dropped distances greater than 1¾ inches from the surface of the elements, only material of which both faces qualify as Class A shall be used, unless the finish material is protected on both sides by an approved automatic fire suppression system or is attached to a noncombustible backing as specified in par. (e) or to furring strips applied directly to such backing as specified in par. (b).

(d) *Class B and C finish materials*. Interior finish materials, other than Class A materials which are less than ¼ inch in thickness, shall be applied directly against a noncombustible backing or a backing of fire-retardant treated wood unless the tests under which such material has been classified were made with the materials suspended from the noncombustible backing.

(e) *Backing material.* 1. Backing for interior finish materials shall be a continuous surface with permanently tight joints, equal in area to the area of the finish, and extending completely behind such finish in all directions.

2. Backing shall be of noncombustible or fire retardant treated wood materials.

3. When the backing does not constitute an integral part of the structural elements or system, it shall be attached directly to the structural elements or to furring strips as specified in par. (b) or may be suspended from the structural members at any distance provided concealed spaces are firestopped as specified in s. ILHR 53.63 (1).

Note: See s. ILHR 51.01 (75a) for further explanatory information.  
Class A Interior Finish — flame spread 0-25, smoke developed 0-450.  
Class B Interior Finish — flame spread 26-75, smoke developed 0-450.  
Class C Interior Finish — flame spread 76-200, smoke developed 0-450.  
Class I Interior Floor Finish — critical radiant flux — .45 watts/cm<sup>2</sup>.  
Class II Interior Floor Finish — critical radiant flux — .22 watts/cm<sup>2</sup>.

History: Cr. Register, December, 1981, No. 312, eff. 1-1-82; am. table, Register, October, 1982, No. 322, eff. 11-1-82; renum. (3) to be (3) (a), cr. (3) (b) and (6), Register, December, 1983, No. 336, eff. 1-1-84.

**ILHR 51.08 Occupancy separations.** (1) When a building is used for more than one occupancy purpose, each part of the building comprising a distinct occupancy division shall be separated from any other occupancy division as provided for under the occupancy requirements of this code.

(2) Occupancy separations shall be classified as absolute, special and ordinary and shall apply to both horizontal and vertical separations.

(a) An absolute occupancy separation shall consist of walls or floors or both of not less than 4-hour fire-resistive construction as specified in ss. ILHR 51.04 to 51.049. All openings in walls forming such a separation shall be protected by self-closing fire-resistive door assemblies as specified in s. ILHR 51.047. The total width of all openings in any such separating wall in any one story shall not exceed 25% of the length of the wall in that story and no single opening shall have an area greater than 120 square feet. Floor openings shall be protected by 4-hour rated shaft enclosures or fire curtain doors as specified in s. ILHR 64.42.

1. All openings in floors forming an absolute occupancy separation shall be protected by vertical enclosures extending above and below such openings.

2. The walls of such vertical enclosures shall be of not less than 3-hour fire-resistive construction as specified in ss. ILHR 51.04 to 51.049, and all openings shall be protected by self-closing fire-resistive door assemblies as specified in s. ILHR 51.047.

(b) A special occupancy separation shall consist of walls or floors, or both, of not less than 3-hour fire-resistive construction as specified in ss. ILHR 51.04 to 51.049. All openings in walls forming such separation shall be protected by self-closing fire-resistive door assemblies as specified in s. ILHR 51.047. The total width of all openings in any such separating wall in any one story shall not exceed 25% of the length of the wall in that story and no single opening shall have an area greater than 120

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square feet. Floor openings shall be protected by 3-hour rated shaft enclosures or fire curtain doors as specified in s. ILHR 64.42.

1. All openings in floors forming a special occupancy separation shall be protected by vertical enclosures extending above and below such openings.

2. The walls of such vertical enclosures shall be of not less than 2-hour fire-resistive construction as specified in ss. ILHR 51.04 to 51.049, and all openings shall be protected by self-closing fire-resistive door assemblies as specified in s. ILHR 51.047.

(c) An ordinary occupancy shall have walls or floors, or both, of not less than 1-hour fire-resistive construction as specified in ss. ILHR 51.04 to 51.049. All openings in such separations shall be protected by self-closing fire-resistive door assemblies as specified in s. ILHR 51.047.

History: 1-2-56; r. and recr. (2) (c), Register, October, 1967, No. 142, eff. 11-1-67; am. (2) (a), (b) and (c), Register, February, 1971, No. 182, eff. 7-1-71; r. and recr. (2) (a), (b) and (c) eff. 8-1-71 and expiring 1-1-72 and cr. (2) (a), (b) and (c) eff. 1-1-72, Register, July, 1971, No. 187; am. (2) (b) 1., Register, December, 1978, No. 276, eff. 1-1-79; r. and recr. (2), Register, December, 1981, No. 312, eff. 1-1-82; am. (2) (a) and (b) (intro.), Register, October, 1982, No. 322, eff. 11-1-82.

**FP ILHR 51.14 Safety glazing.** (1) **SCOPE.** This section applies to fixed or operating glazed flat panels adjacent to doors; fire window assemblies; display cases within 7 feet of the floor in schools; mirrors; framed, glazed pictures or similar decorative objects; skylights; sloped glazing and any other glazing materials used in hazardous impact areas which are not included within the scope of the federal consumer product safety commission (CPSC) standard for architectural glazing materials, 16 CFR, para. 1201.

Note: The CPSC standard for architectural glazing materials pre-empts state and local regulations for framed or unframed interior or exterior glazed doors, exterior doors with glazed lights, sliding doors and the adjacent glazed fixed or operating panel, storm doors, shower doors, walk-in mirror closet doors and tub enclosures.

(2) **APPLICATION.** All glazing material used in hazardous impact locations shall be safety glazing material. All replacements of glazing material in hazardous impact locations made after November 30, 1976, shall be safety glazing, except that the replacement of glazing shall be as specified in sub. (3).

(a) **Location.** Hazardous impact locations shall include all glazed elements such as framed or unframed interior or exterior glass doors, the first fixed or operating flat panel within 2 feet of nearest vertical edge of an entrance or exit door, exterior doors with glass lights, or any other glazed elements which may be mistaken for a means of egress or ingress to a room or building. Other hazardous impact locations shall include sliding doors and the adjacent glazed fixed or operating panel, storm doors, shower doors, tub enclosures and display cases within 7 feet of the floor in schools except as follows:

1. A fixed or operating flat panel immediately adjacent to an entrance or exit door is exempt from the requirements of this paragraph if the lower horizontal edge of the panel is 2 feet or more above the floor; or

2. Any mirror, framed glazed picture or similar decorative object which is attached to a door or wall in a hazardous impact location and

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which does not in whole or in part conceal any opening in such door or wall is exempt from the requirements of this paragraph.

(b) *Material.* Safety glazing shall include any glazing material including but not limited to tempered glass, laminated glass, wired glass, safety plastic, or safety insulating units which meet the test requirements of the American National Standards Institute (ANSI) standard Z97.1-1975, and which are constructed, treated or combined with other materials so as to minimize the likelihood of cutting and piercing injuries resulting from human impact with the glazing material.

(c) *Labeling.* Safety glazing material shall be labeled with a permanent label by such means as etching, sand blasting, firing of ceramic material, or hot die stamping. The label shall be legible and visible after installation. Labels identifying safety glazing materials may be omitted provided that a notarized affidavit or invoice is submitted to the department or owner upon request certifying the installation of safety glazing material. The label or affidavit shall identify the seller, manufacturer, fabricator, or installer, the nominal thickness and type of safety glazing material, and the fact that the material meets the test requirements of the American National Standards Institute (ANSI) standards Z97.1-1975.

(3) **GUARDING OF GLAZING.** All interior and exterior glazed panels, subject to human impact not in a hazardous impact location, shall be guarded or provided with safety glazing, except that glazed panels with a sill height of 2 feet or more, or glazed panels less than 12 inches in width, are not required to be safety glazed or guarded.

(a) Guarding shall consist of a horizontal bar, rail, mullion, grille or screen at least 1-½ inches wide and located within 3 feet 6 inches to 4 feet 6 inches above the floor. The guard assembly shall be capable of withstanding a lateral force of 100 pounds applied at any point and installed to avoid contact with the glazing when the force is applied.

(b) Safety glazing materials shall be as specified in sub. (2) (b).

(c) For replacement of glazing in buildings contracted for or existing prior to November 30, 1976, the installation of a horizontal bar, rail, mullion, grille or screen as a protective device may be provided in lieu of safety glazing material in hazardous impact locations where safety glazing would be impractical because of the size of the light required.

(4) **INTERIOR DOORS WITH GLASS LIGHTS.** (a) All interior doors with glass lights greater than 8 inches in the least dimension shall be provided with safety glazing material.

(b) All interior doors with glass lights less than 8 inches in the least dimension shall be provided with ¼-inch glazing material.

(c) Safety glazing materials shall be as specified in sub. (2) (b).

(5) **SKYLIGHTS AND SLOPED GLAZING.** (a) *Skylights.* All glazing in skylights shall be safety glazing material and shall comply with the requirements specified in s. ILHR 51.02 (6).

(b) *Sloped glazing.* All glazing installed more than 15° with the vertical shall be safety glazing material. This paragraph does not apply to greenhouses.

(6) **FIRE WINDOW ASSEMBLIES.** All glazing in fire window assemblies shall be designed and installed as specified in s. ILHR 51.048.

(7) **STRUCTURAL REQUIREMENT.** Glazing material shall be designed and installed to safely withstand the loads specified in ch. ILHR 53.

Note: Section 101.125, Stats., requires safety glazing in all hazardous locations.

History: Cr. Register, December, 1981, No. 312, eff. 1-1-82.

**ILHR 51.15 Standard exit.** (1) Every door which serves as a required exit from a public passageway, stairway or building shall be a standard exit door unless exempted by the occupancy requirements of this code.

Note: See ss. ILHR 54.06, 55.10, 56.08, 57.06, 58.04, 58.49, 59.14, 60.12, 61.12, 62.26, 62.47 and 62.75 for requirements regarding required exits.

**FP** (2) Every standard exit door shall swing outward or toward the natural means of egress. It shall be level with the floor, and shall be so hung that, when open, it will not block any part of the required width of any other doorway, passageway, stairway or fire escape. No revolving door, overhead door or sliding door shall be considered as a standard exit.

**FP** (3) A standard exit door shall have such fastenings or hardware that it can be opened from the inside by pushing against a single bar or plate or turning a single knob or handle.

(a) The installation of hardware requiring use of a key for opening an exit door from the inside, except on doors serving individual living units, shall be prohibited. This paragraph shall apply to all buildings in existence and to any building built after the effective date of this rule.

1. *Exception:* Upon written request by the owner, key-locking, or securing, of exits may be approved in fire-resistive buildings, or parts of fire-resistive buildings, accommodating occupants who must be detained in order to protect the occupants or the public from physical harm.

Note #1: Section ILHR 51.15 (3) (a) 1, is intended to apply only to jails, prisons, mental institutions, asylums, nursing homes with senile patients, and similar type occupancies.

Note #2: The owner's request should include the following considerations: accessibility of keys to the fire department and staff personnel for the locked areas; electrical devices which release the locks; and 24-hour supervision of the locked areas by personnel who carry keys for the locked areas while on duty. Electrical devices which release the locks upon power failure or upon activation of the fire alarm or sprinkler system or the product of combustion detectors should be considered for securing of exits in nursing homes.

Note #3: Written approval to lock exits must also be obtained from the department of health and social services in accordance with the rules of that department.

(b) The door shall not be barred, bolted or chained at any time.

1. *Exception.* When authorized persons (employees, frequenters, patrons and other such occupants) are not present, the exit door may be secured by the use of a single bar or bolt. A sign or label shall be posted on the door near the single bar or bolt. The sign or label shall bear the following: "This bolt or bar shall be kept open during periods of occupancy."

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Note: The intent of (3)(b) is to prohibit padlocks or use of a key to open a door or lock at any time. The bar and bolt exception is to give added security against intruders from the outside while protecting persons in the building from being trapped.

(c) The latch or other approved fastening device on the door shall be of an obvious method in its release and shall be so located on the exit door that the device is not less than 32 inches or more than 40 inches above the floor level.

(4) A standard exit doorway shall not be less than 6 feet 4 inches high by 3 feet 0 inches wide, except where especially provided under occupancy classifications and in s. ILHR 51.20. Where double doors are provided with or without mullions, the width of each single door may be reduced to 2 feet 6 inches, except double doors utilized to provide accessibility in accordance with s. ILHR 52.04 shall have the width of at least one single door increased to 2 feet 8 inches.

(5) All exit doors, unless otherwise exempted by the occupancy requirements of this code, shall be plainly marked by a red illuminated translucent exit sign bearing the word EXIT or OUT in plain letters not less than 5 inches in height and in such other places as may be necessary to direct the occupants to exit doorways.

(6)\* **REQUIRED AGGREGATE WIDTH.** (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:

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.

\*See Appendix A for further explanatory material.

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(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.

**ILHR 51.16 Stairways.** (1) **DEFINITION.** A stairway is 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 providing means of ingress or egress.

(2) **REQUIRED AGGREGATE WIDTH.** (a) The required aggregate width of stairway exits from any level shall be as determined in accordance with the requirements of s. ILHR 51.15 (6).

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

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

(3) **MINIMUM WIDTH.** (a) Every required exit stairway 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 need not conform to the width requirements of this code.

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

(a) All stairways and steps shall have a rise of not more than 7¾ inches and a tread not less than 9½ inches, measured from tread to tread and from riser to riser. Treads and risers shall be uniform in any one flight. Winders shall not be used;

**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.

**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 7¾ inches below the doorsill;

(d) Every stairway flight shall have at least 3 risers (unless additional safety is provided which meets the approval of the department); and

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

(5) **STAIRWAY LANDINGS AND PLATFORMS.** (a) If a door is provided at the head and/or foot of a stairway, a landing or platform shall be placed

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