

(57b) "Foam plastic" means a manufactured organic material used as a building material, insulation or sound-absorbing material.

(58) FOYER. An enclosed space and passageway into which aisles, corridors, stairways, or elevators may exit and from which the public has access to exits.

(58a) "Freestanding freezer and cooler" means equipment with an aggregate floor area of less than 400 square feet used to provide a controlled environment at 50°F. or less for storing, displaying or merchandising of products. The freezers and coolers are installed in a building or structure for weather protection and do not rely upon the building or structure for lateral or vertical support, except for the floor load.

Note: Freezers and coolers which do not meet this definition are considered refrigerated facilities. See s. ILHR 51.06 (7) (a) for additional requirements.

(58b) "Freezer warehouse" means a building or structure designed and operated at a temperature of 32°F. or below and adapted to the reception and storage of goods, products and merchandise.

(59) FRONT YARD. See "Yard (front)."

(60) FUEL CONTRIBUTED CLASSIFICATION. Fuel contributed classification (FCC) is a comparative measure of the fuel contribution of a material or an assembly in the flame-spread test per ASTM E-84.

(61) FURNACE. A completely self-contained direct-fired, automatically controlled, vented appliance for heating air by transfer of heat of combustion through metal to the air and designed to supply heated air through ducts to spaces remote from the appliance location.

(62) FURNACE (DUCT). A suspended direct-fired heating appliance normally installed in air ducts. Air circulation is provided by a blower not furnished as part of the appliance.

(63) GRADE (AT BUILDING). Elevation of surface of paved or unpaved ground adjacent to wall of a building.

(64) "Grade, exit discharge" means the elevation of the finished exterior surface of paved or unpaved ground directly below any exit discharge doorsill.

(65) GRAVITY EXHAUST VENTILATION. See "Ventilation (gravity exhaust)."

(66) GROSS AREA. See "Area (gross)."

(67) GROUND FLOOR. A ground floor is that level of a building on a sloping or multilevel site which has its floor line at or not more than 3 feet above exit discharge grade for at least one-half of the required exit discharges.

(67a) HABITABLE ROOM. Any room or enclosed floor space arranged for living and/or sleeping purposes.

Note: See Appendix A for further explanatory material.

(68) HAZARDOUS PIPING. See "Piping (hazardous)."

(68a) "Health care facility" means both hospital or nursing home.

(69) HEATING SYSTEM. Any combination of building construction, machinery, devices or equipment, so proportioned, arranged, installed, operated, and maintained as

to produce and deliver in place the required amount and character of heating service.

(70) HEIGHT (BUILDING). Height of a building is measured from the average of the exit discharge grade elevation of all required first story exits to the top of a level roof or to a point ½ of the distance between the intersection of the exterior wall surface (extended) with the roof surface, and the highest part of the roof but not to include penthouses.

Note: For exceptions to penthouses see definition "Stories, Number of."

(71) HOLLOW BONDED WALL. See "Wall (hollow bonded)."

(71k) "Home occupation" means any business, profession, trade or employment conducted in a person's dwelling which may involve that person's immediate family or household and a maximum of one other unrelated person, but does not include a business involving:

1. Explosives, fireworks or repair of motor vehicles; or
2. More than 25% of the habitable floor area of the dwelling.

(71m) "Hospital" means any building, structure, institution or place used for the maintenance and operation of facilities for the diagnosis, treatment of and medical or surgical care for 3 or more nonrelated individuals herein-after designated patients, suffering from illness, disease, injury or disability, whether physical or mental, and including pregnancy and regularly making available at least clinical laboratory services, and diagnostic x-ray services and treatment facilities for surgery, or obstetrical care, or other definitive medical treatment.

(71n) "Household" means those persons who live together in the same dwelling and treat the dwelling as their permanent home or residence.

(71o) "Housing for the elderly" means a residential occupancy building the construction of which is financed by governmental agencies with occupancy limited to people meeting specific age or disability criteria as specified by the financing agency.

(71p) INDEPENDENT INSPECTION AGENCY. Independent inspection agency means any person, firm, association, partnership or corporation, other than a municipal corporation, certified by the department to perform certified inspections under this code.

(72) INNER COURT. See "Court (inner)."

(73) INNER LOT LINE COURT. See "Court (inner lot line)."

(74) INTAKE (OUTSIDE AIR). See "Outside Air Intake."

(75) INTERIOR BALCONY. See "Balcony (interior)."

(75a) "Interior finish" means the exposed interior surfaces of buildings, including, but not limited to fixed or movable walls and partitions, columns, ceilings, and floors.

(a) "Class A interior finish" includes any material classified at 25 or less on the flame spread test scale and 450 or less on the smoke test scale in accordance with ASTM E 84.

(b) "Class B interior finish" includes any material classified at more than 25 but not more than 75 on the flame

ILHR 51.01

spread test scale and 450 or less on the smoke test scale in accordance with ASTM E 84.

(c) "Class C interior finish" includes any material classified at more than 75 but not more than 200 on the flame spread test scale and 450 or less on the smoke test scale in accordance with ASTM E 84.

(d) "Class I interior floor finish" includes any material with a minimum critical radiant flux of 0.45 watts per square centimeter as determined in accordance with ASTM E 648.

(e) "Class II interior floor finish" includes any material with a minimum critical radiant flux of 0.22 watts per square centimeter as determined in accordance with ASTM E 648.

(76) JACKETED STOVE. See "Stove (jacketed)."

(76a) LIVING UNIT. Any enclosed floor space consisting of one or more habitable rooms (with or without accessory rooms) used by a person or family.

(77) LOBBY. An enclosed space into which aisles, corridors, stairways, elevators or foyer may exit and provides access to exits.

(78) LOT LINE. A legally established line dividing one lot, plot of land or parcel of land from an adjoining lot or plot of land or parcel of land.

(79) MAJOR APPARATUS. Central air-handling equipment supplying more than one occupancy or rooms and heat-producing equipment generating heat for the heating and ventilating system.

(79m) MASONRY. A construction composed of separate units such as brick, block, hollow tile, stone or approved similar units or a combination thereof, laid up or built unit by unit and bonded by approved manner.

(79r) "Mausoleum" means a building, structure or part of a building or structure that is used or intended to be used for the burial of human remains.

(80) "Mausoleum space" means a niche, crypt or specific place in a mausoleum that contains or is intended to contain human remains.

(80a) "Means of egress" means a continuous and unobstructed way of exit travel from any point in a building or structure to a street, alley, court or a public way. A means of egress consists of the exit access, the exit and the exit discharge. A means of egress includes the vertical and horizontal ways of travel and includes intervening room space, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, horizontal exits and courts.

(81) MECHANICAL VENTILATION. See "Ventilation (mechanical)."

(82) "Mezzanine" means an intermediate floor level, either open or enclosed.

Note: See also sub. (122), "stories, number of," and s. ILHR 51.02 (14) pertaining to the determination of the number of stories.

(82a) "Mini-storage building" means an unoccupied compartmentalized building used for storage.

(83) NET AREA. See "Area (net)."

Register, March, 1995, No. 471

(84) NONBEARING WALL. Refer to "Wall (exterior)" or "Partition."

(85) NONCOMBUSTIBLE CONSTRUCTION. An assembly such as a wall, floor or roof having components of noncombustible material.

(86) NONCOMBUSTIBLE MATERIAL. A noncombustible material is one which, in the form in which it is used, meets one of the requirements par. (a) or (b). Materials used adjacent to or in contact with heat-producing appliances, warm air ducts, plenums and chimneys shall be classified as noncombustible only on the basis of requirement par. (a). Noncombustible does not apply to the flame-spread characteristics of interior finish or trim materials. No material shall be classed as noncombustible building construction material which is subject to increase in combustibility or flame-spread classification (FSC) beyond the limits herein established through the effects of age, moisture or other atmospheric conditions.

Note: The federal trade commission does not consider ASTM E-84 as an accurate indicator of the performance of cellular plastics used in building construction under actual fire conditions, and that it is only valid as a measurement of the performance of such materials under specific, controlled test conditions. The 25 flame-spread rating is not intended to reflect hazards presented by such products under actual fire conditions. The federal trade commission considers that under actual fire conditions, such products, if allowed to remain exposed or unprotected, will under some circumstances produce rapid flame spread, quick flashover, toxic or flammable gases, dense smoke and intense and immediate heat and may present a serious fire hazard.

(a) Materials which pass the test procedure of ASTM E-136 for defining noncombustibility of elementary materials when exposed to a furnace temperature of 1,382° F. for a minimum period of 5 minutes, and do not cause a temperature rise of the surface or interior thermocouples in excess of 54° F. above the furnace air temperature at the beginning of the test and which do not flame after an exposure of 30 seconds.

(b) Materials having a structural base of noncombustible material as defined in par. (a), with a surfacing not more than 1/8 inch thick which has a flame-spread classification (FSC) not greater than 50 when tested in accordance with ASTM E-84.

(86a) "Nursing home" means any building, structure, institution or place which provides 24-hour services including board and room to 3 or more unrelated residents who because of their mental or physical condition require nursing care or personal care in excess of 7 hours a week. The term "nursing home" wherever used in chs. ILHR 50-64, includes nursing and convalescent homes, skilled nursing facilities, infirmaries in homes for the aged, and intermediate care facilities of 15 beds or more.

(87) OCCUPANCY OR USE. The purpose for which a building, structure, equipment, materials, or premises, or part thereof, is used or intended to be used as regulated in this code.

(88) OCCUPIED. Refers to any room or enclosure used by one or more persons for other than incidental maintenance.

(89) OPEN SPACES. Front (setback), rear and side yards, exit courts, outer courts, and outer lot line courts on the same property with a building as regulated by this code.

(89g) "Outdoor event" means an event held at a location generally without a permanent structure and may include organized sports games, home tours, auctions, picnics, concerts, art shows, fairs, or any similar, infrequent, short-term event.

(90) **OUTDOOR OPENINGS.** May be doors, windows or skylights located in outside walls or roof and can be opened to provide natural ventilation to the occupied space.

(90g) "Outdoor toilet" means either a permanently constructed toilet with a disposal cavity, or a portable toilet provided where either a public sewer is unavailable or where additional toilet fixtures are temporarily needed to meet the required number for an outdoor event.

Note: A privy may also be referred to as an outdoor toilet.

(91) **OUTER COURT.** See "Court (outer)."

(92) **OUTER LOT LINE COURT.** See "Court (outer lot line)."

(93) **OUTLET (SUPPLY OPENING).** An opening, the sole purpose of which is to deliver air into any space to provide heating, ventilating or air conditioning.

(93a) "Outpatient surgical facility" means a facility devoted to the performance of surgical procedures utilizing inhalation anesthetics without anticipation of the overnight stay of patients.

(94) **OUTSIDE AIR.** Air that is taken from outside the building and is free from contamination of any kind in proportions detrimental to the health or comfort of the persons exposed to it.

(95) **OUTSIDE AIR INTAKE.** Includes the ducts and outdoor openings through which outside air is admitted to a ventilating, air conditioning or heating system.

(96) **PANEL WALL.** See "Wall (panel)."

(97) **PARTITION.** A partition is an interior nonbearing vertical element serving to enclose or divide an area, room or space. Portable or demountable partitions requiring tools for installation or removal are considered partitions not furniture.

(98) **PARTY WALL.** See "Wall (party)."

(99) "Penthouse" means an enclosed or partially enclosed structure extending above a roof of a building or structure and enclosing a stairway, tank, elevator, machinery, mechanical equipment or other apparatus and not used for human occupancy.

(100) **PIER.** An isolated column of masonry or concrete. A section of bearing wall not bonded on the sides into adjoining masonry shall be considered to be a pier when its horizontal dimension measured at right angles to the thickness does not exceed 4 times the thickness.

(101) **PILASTER.** A projection of masonry for the purpose of bearing concentrated loads, or to compensate for reduction of wall section by chases, openings or recesses, or for the purpose of stiffening the wall against lateral forces. (See also "Buttress.")

(102) **PIPING (HAZARDOUS).** Any service piping conveying oxygen, flammable liquids, flammable gases or toxic gases.

(102a) "Place of abode" means a residential building or part of a residential building used as follows:

(a) Occupied as a residence of 3 or more families living independently or occupied by 2 such families and used also for business purposes; or

(b) Occupied for sleeping or lodging purposes by 3 or more persons not members of the same family.

Note: Examples of places of abode include but are not limited to apartment buildings, garden apartments, row houses, town houses, condominiums, hotels, motels, rooming houses, dormitories, convents, monasteries, homes for the aged and certain community-based residential facilities.

(102b) **PLACE OF EMPLOYMENT.** The term "place of employment" includes every place, whether indoors or out or underground and the premises appurtenant thereto where either temporarily or permanently any industry, trade or business is carried on, or where any process or operation, directly or indirectly related to any industry, trade or business, is carried on, and where any person is, directly or indirectly, employed by another for direct or indirect gain or profit, but does not include any place where persons are employed in a) private domestic service which does not involve the use of mechanical power or b) farming.

(103) **PORCH.** An unenclosed exterior structure at or near grade attached or adjacent to the exterior wall of any building, and having a roof and floor. (See also "Terrace" and "Balcony.")

(103g) "Privy" has the meaning given in s. ILHR 83.02 (42).

Note: Section ILHR 83.02 (42) defines a privy as a structure, not connected to a plumbing system, which is used by persons for the deposition of human body wastes.

(104) "Property line" means the following:

(a) A legally established line dividing one lot, plot of land or parcel of land from an adjoining lot or plot of land or parcel of land; or

(b) A permanent easement recorded with the county register of deeds, on file with the department, on adjoining property providing control over the property eased.

(104a) "Public building" has the meaning given in s. 101.01 (2) (g), Stats.

Note: Section 101.01 (2) (g), Stats., reads "Public building" means any structure including exterior parts of such building, such as a porch, exterior platform or steps providing means of ingress or egress, used in whole or in part as a place of resort, assemblage, lodging, trade, traffic, occupancy, or use by the public or by 3 or more tenants. When used in relation to building codes, "public building" does not include a previously constructed building used as a community-based residential facility as defined in s. 50.01 (1g) which serves 20 or fewer unrelated residents or an adult family home certified under s. 50.032 (1) (b)."

(104m) "Public mausoleum" means a mausoleum that holds or is intended to hold the remains of more than 10 humans or a mausoleum in which at least one mausoleum space is offered for sale to the general public.

(105) **PUBLIC THOROUGHFARE.** Any legally established street or alley as defined herein.

(105a) **REMODELING.** To remodel or alter, or both, means to change any building or structure which affects the structural strength, fire hazard, internal circulation, or exits of the existing building or structure. This definition

does not apply to maintenance, reroofing, or alterations to the heating and ventilating or electrical systems.

(105e) "Recyclable material" means solid waste material prohibited for land disposal and incineration, that is separated, temporarily stored and collected. These materials include, but are not limited to, aluminum and glass containers, corrugated paper or container board, magazines, newspapers, office paper, foam polystyrene packaging, and plastic or steel containers.

(106) REQUIRED. A term for mandatory use under the provisions of this code.

(106a) REQUIRED EXIT CORRIDOR. See "Corridor (Required Exit)."

(107) RESTRAINED SUPPORT. A flexural member where the supports or the adjacent construction, or both, provides complete or partial restraint against rotation of the ends of the member or partial restraint against horizontal displacement, or both, when subject to a gravity load or temperature change, or both.

(108) RETAINING WALL. See "Wall (retaining)."

(109) RETURN (OR EXHAUST OPENING). Any opening, the sole purpose of which is to remove air from any space being heated, ventilated or air conditioned.

(110) ROADWAY. That portion of a public thoroughfare devoted to vehicular traffic, or that part included between curbs.

(111) ROOF. The structural cover of a building with a slope range bearing from horizontal to a maximum of 60° to the horizontal.

(112) ROOF COVERING. Refers to the covering applied over the roof construction for the purpose of weather or fire resistance.

(113) ROOF COVERINGS (FIRE-RETARDANT). See "Fire-Retardant Roof Coverings."

(114) ROOM. A space within a building completely enclosed with walls, partitions, floor and ceiling, except for openings for light, ventilation, ingress and egress.

(114a) "Rowhouse" means a place of abode not more than 3 stories in height, arranged to accommodate 3 or more attached, side by side or back to back living units.

(115) "Setback" means the distance between the property line or public thoroughfare, and the nearest part of the building, as measured perpendicular to the bisector of the angle formed by the intersection or projected intersection of the building face with the property line or another building face.

Note: See Appendix A for further explanatory material.

(116) SHAFT. A vertical opening in a building extending through one or more stories and/or roof, other than an inner court.

(117) SHALL. A term for mandatory use under the provisions of this code.

(117m) "Shelter facility" has the meaning given in s. 46.97 (1) (d), Stats.

Register, March, 1995, No. 471

Note: Section 46.97 (1) (d), Stats., reads: "Shelter facility means a temporary place of lodging for homeless individuals or families."

(118) SIGNS. A structure that is intended, designed, or used for advertising, display, identification, announcements, or related purposes; this includes signs, screens, billboards, and other advertising devices of any type.

(119) SIMPLE SUPPORT. A flexural member where the supports or the adjacent construction, or both, allows free rotation of the ends of the member and horizontal displacement when subject to a gravity load or a temperature change, or both.

(119a) "Sleeping area" means the area of residential buildings in which bedrooms or sleeping rooms are located. Bedrooms or sleeping rooms separated by other use areas such as kitchens or living rooms, but not bathrooms, are considered as separate sleeping areas. Each individual room or suite of rooms in hotels, motels, dormitories or congregate living facilities is considered a separate sleeping area.

(119b) "Smoke detector" means a device which detects particles or products of combustion other than heat.

(119c) "Solid-fuel equipment" means equipment burning solid rather than gas or liquid fuel.

Note: Typical solid fuels are coal and wood.

(120) "Space heater" means a fuel-fired vented, self-contained free-standing or wall recessed heating appliance.

(120a) "Spandrel" means that portion of wall filling the space between the top of a window in one story and the sill of the window in the story above.

(120am) "Specialty event center" has the meaning given in s. 101.128 (1) (g), Stats.

Note: Section 101.128 (1) (g), Stats., defines specialty event center as an open arena used for rallies, concerts, exhibits, or other assemblies with no permanent structure for such assembly. Also refer to sub. (89g) for definition of an outdoor event.

(120b) "Step" means one riser and one tread.

(121) STORIES, NUMBER OF. The number of stories of a multistory building includes all stories except the basement, ground floor, attic or interior balcony and mezzanine floor. (Also see s. ILHR 51.02 (14).)

Note: See Appendix A for further explanatory material.

(122) STORY. The space in a building between the surfaces of any floor and the floor next above or below, or roof next above, or any space not defined as basement, ground floor, mezzanine, balcony, penthouse or attic. (Also see "Stories, Number of.")

(124) "Street" means any legally established public thoroughfare or all-weather hard surface area 30 feet or more in width whether designated or not by name or number such as avenue, boulevard, circle, court, drive, lane, place, road or way. Streets must extend at least 50% of the length of the side of the building and must be accessible to fire fighting equipment.

(125) STRUCTURE. A structure is an assembly of materials forming a construction for occupancy or use meeting the definition of place of employment or public building.

Note: Structures include, among others, buildings, stadiums, tents, reviewing stands, observation towers, radio and television towers, water tanks, piers, wharves, shelters, canopies, and display signs.

(125m) "Stud" means an upright member of a framing wall, having a spacing of less than 48 inches on center, and which is primarily intended to have sheathing fastened to it.

(126) SUPPORT (RESTRAINED). See "Restrained Support."

(127) SUPPORT (SIMPLE). See "Simple Support."

(128) TEMPERED AIR. Air transferred from heated area of building.

(129) TEMPERED OUTSIDE AIR. Outside air heated before distribution.

(130) TERRACE. An unenclosed exterior structure at or near grade having a paved, floored, or planted platform area adjacent to an entrance or to the exterior walls for a building or structure and having no roof.

(130g) "Toilet room" means a room in a permanent structure solely designated for sanitary fixtures which ensures privacy of their use. A toilet room may include a water closet, urinal and a lavatory.

(130m) "Townhouse" means an apartment building where each living unit is served by an individual exterior exit within 3 feet of the exit discharge grade.

(131) TREATED WOOD (FIRE-RETARDANT). See "Fire Retardant-Treated Wood."

(132) UNIT HEATER (HIGH STATIC PRESSURE TYPE). A direct-fired suspended or floor standing, self-contained, automatically controlled and vented, heating appliance having an integral means for circulation of air against 0.2 inch or greater static pressure.

(133) UNIT HEATER (LOW STATIC TYPE). A direct-fired suspended, self-contained automatically controlled, vented heating appliance, having integral means for circulation of air by means of a propeller fan or fans.

(134) VENEERED WALL. See "Wall (veneered)."

(135) VENTILATING SYSTEM (EXHAUST). Any combination of building construction, machinery, devices or equipment, designed and operated to remove harmful gases, dusts, fumes or vitiated air, from the breathing zone of employees and frequenters.

(136) VENTILATION. The process of supplying or removing air by natural or mechanical means, to or from any space.

(137) VENTILATION (GRAVITY EXHAUST). A process of removing air by natural means, the effectiveness depending on atmospheric condition, such as difference in relative density, difference in temperature or wind motion.

(139) VERTICAL EXIT. A means of egress used for ascension or descension between 2 or more floors, or other levels, and shall include approved exterior stairways, automatic (moving) stairways, fire escapes, ramps, stairways, and smokeproof stair towers.

(139a) VOLUME (TOTAL). The "total volume" (cube or cubage) of a building is the actual cubic space enclosed within the outer surfaces of the outside or enclosing walls

and contained between the outer surfaces of the roof and the underside of the lowest floor. The volume of structures without enclosing walls (canopies, roofed shelters and similar structures) will be computed by projecting imaginary vertical planes as the enclosing walls at the outer surface of the exterior supports or columns. For cantilevered structures with interior supports, the imaginary vertical planes will be projected at the farthest roof projection or overhang.

Note: The definition of total volume requires the cube of dormers, pent-houses, vaults, pits, enclosed porches and other enclosed appendages to be included as a part of the cube of the building. It does not include the cube of courts or light shafts, open at the top, or the cube of outside steps, cornices, parapets, or open porches or loggias.

(140) WALL. A structural element which is vertical or within 30° of vertical, serving to enclose space, form a division, or support superimposed weight.

(141) WALL (BEARING). Any wall which supports a load in addition to its own weight.

(142) WALL (CAVITY). A wall built of masonry units or of plain concrete, or a combination of these materials, so arranged to provide an air space within the wall, and in which the facing and backing (inner and outer parts) of the wall are tied together with metal ties.

(143) WALL (CURTAIN). An exterior nonbearing wall.

(144) WALL (DIVISION) (a) *Building division*. A wall used for separation between 2 buildings on the same property identical in construction to a party wall.

Note: See Appendix A for further explanatory material.

(b) *Fire division*. A wall extending from the lowest floor level to or through the roof to restrict the spread of fire.

(145) WALL (EXTERIOR). Any outer enclosing wall of a building or structure.

(145) WALL (FRAMING). Wall framing shall include columns, studs, beams, girders, lintels and girts.

(147) WALL (HOLLOW BONDED). Wall built of masonry units with or without any air space within the wall, and in which the facing and backing of the wall are bonded together with masonry units.

(148) WALL (NONBEARING EXTERIOR). Wall which supports no vertical load other than its own weight.

(148a) WALL (NONBEARING INTERIOR). See "Partition."

(149) WALL (PANEL). An exterior nonbearing wall in skeleton construction.

(150) WALL (PARAPET). That part of a wall entirely above the roof line.

(151) WALL (PARTY). Walls used for separation between 2 buildings on the property line between adjoining properties.

Note: See Appendix A for further explanatory material.

(152) WALL (RETAINING). Wall used to resist laterally imposed pressures.

(153) WALL (VENEERED). Wall having facing which is attached to the backing but not so bonded as to exert common action under load.

## ILHR 51.01

(153a) **WAREHOUSE.** A warehouse is a place adapted to the reception and storage of goods and merchandise.

(154) **YARD (FRONT).** An open, unoccupied space unobstructed to the sky, extending across the full width of a lot, or plot of land between the street line and the base of a front building wall. Unenclosed terraces, slabs or stoops without roofs or walls may project into this open space.

**History:** Cr. Register, June, 1972, No. 198, eff. 1-1-73; renum. (1) to be (1a), r. and recr. (10), (54), (67) and (121), cr. (1), (5a), (22a), (56a), (57a), (67a), (76a), (106a) and (148a), Register, September, 1973, No. 213, eff. 10-1-73; cr. (102a), (104a) and (105a), Register, December, 1974, No. 228, eff. 1-1-75; cr. (7a), (41a), (139a) and (153a) and am. (125), Register, December, 1976, No. 252, eff. 1-1-77; cr. (42a), (42b), (42c), (42d), and (120a), am. (139a), Register, December, 1977, No. 264, eff. 1-1-78; am. (23) to (26), (97) and (139a), r. (86) (c), Register, December, 1978, No. 276, eff. 1-1-79; cr. (16a), (71a), (79a) and (114a), Register, May, 1980, No. 293, eff. 6-1-80; am. (1) and (124), r. (123), r. and recr. (120), renum. (102a) to be (102b), renum. (114a) to be (114b), cr. (19a), (36a), (36b), (36c), (37a), (38a), (38b), (71b), (75a), (80a), (82a), (102a), (114a), (119a), (119b), (119c) and (130a), Register, December, 1981, No. 312, eff. 1-1-82; renum. (71a) to be (71c), cr. (68a), (71a), (86a) and (93a), Register, February, 1982, No. 314, eff. 3-1-82; r. and recr. (7a), renum. (19a) to be (19b), cr. (7b) and (19a), Register, June, 1983, No. 330, eff. 7-1-83; renum. (120a) to be (120b), cr. (3a), (57b), (58a), (58b) and (120a), r. and recr. (13), am. (86) (a), (104) and (120), Register, December, 1983, No. 336, eff. 1-1-84; am. (7b), Register, February, 1984, No. 338, eff. 3-1-84; cr. (5b), (11a) and (29a), am. (75a) and (99), r. and recr. (104) and (114a), Register, August, 1985, No. 356, eff. 1-1-86; reprinted to correct error in (99), Register, May, 1988, No. 389; am. (6), (5b), (33) and (99), renum. (36c), (71a) to (71c) to be (36d), (71m), (71o) and (71p) and am. (71c), cr. (6m), (17g), (17m), (36c), (71k), (71n) and (117m), r. and recr. (11a), (19b) and (82), r. (114b) and (138), Register, February, 1991, No. 423, eff. 4-1-91; renum. (16) and (80) to be (15m) and (79m), cr. (16), (79r), (80) and (104m), Register, March, 1992, No. 435, eff. 4-1-92; cr. (105e), Register, October, 1992, No. 442, eff. 5-1-93; cr. (2m), (41g), (89g), (90g), (103g), (120am) and (130g); renum. (41a) and (130a) to be (41m) and (130m), Register, August, 1993, No. 452, eff. 3-1-94; cr. (17n) and (125m), am. (64), (75a) (a) to (e), (82), (86) (b) and (104) (b), r., and recr. (82a), (104a), (115) and (120b), Register, January, 1994, No. 457, eff. 2-1-94; r. (79a), Register, March, 1995, No. 471, eff. 4-1-95.

### Standards for Classes of Construction

**ILHR 51.015 Scope.** This chapter covers minimum standards for common types of building designs being constructed. This chapter does not specifically include standards for uncommon building designs such as shells, domes, space frames, inflatable and similar types of designs. The standards contained in this chapter shall be used as a guide for uncommon building designs to achieve the degrees of safety intended by these standards.

**History:** Cr. Register, June, 1972, No. 198, eff. 1-1-73; renum. Register, September, 1973, No. 213, eff. 10-1-73; am. Register, January, 1994, No. 457, eff. 2-1-94.

**ILHR 51.02 General requirements. (1) FIRE-RESISTIVE RATINGS.** The fire-resistive ratings shown in "Classes of Construction" Table 51.03-A are to satisfy the structural integrity end point for the time specified. For heat transmission end point requirements see s. ILHR 51.042 (5).

(2) **SUBSTITUTE.** Substitution of a building element fire-resistive rating will be permitted in any class of construction providing it is equal to or better than the required fire-resistive rating as specified in Table 51.03-A.

(a) Construction requiring the use of noncombustible material shall not be replaced by combustible construction regardless of fire-resistive rating unless mentioned specifically under classes of construction standards.

(b) Noncombustible construction may be substituted for combustible construction provided the fire-resistive rating

Register, March, 1995, No. 471

indicated in Table 51.03-A is equal to or better than that noted for combustible construction.

**Note:** See ILHR 64.41 (1) for requirements pertaining to combustible ceiling materials used in conjunction with air-handling plenums.

(c) Fire-retardant treated wood exposed to high humidity or accelerated weathering shall be pressure impregnated and so identified. Subsequent to treatment, lumber 2 inches or less in thickness shall be dried to a moisture content of 19% or less, and plywood to a moisture content of 15% or less.

**Note:** The department will accept fire-retardant treated lumber and plywood which meet the standards of the American Wood Preservers Association, "Fire-Retardant Treatment by Pressure Processes," and ASTM D 2898, "Standard Methods of Test for Durability of Fire-Retardant Treatment of Wood."

(3) **FLOOR FRAMING. (a) General.** All floor framing shall satisfy the requirements of Table 51.03-A, unless more restrictive requirements are noted under the occupancy chapters of this code.

(b) **Permanent raised platforms. 1.** Permanent raised platforms shall be constructed of the types of materials and fire resistive properties as specified in:

a. Table 51.03-A line 3 or 4 for the appropriate class of construction and number of stories involved; or

b. Table 51.03-A line 18 for the appropriate class of construction, if the platform is directly supported by a structural floor system which satisfies the appropriate material and fire resistive properties as outlined in Table 51.03-A line 3 or 4.

2. Permanent raised platforms shall be designed and constructed to support the dead loads and live loads as specified in ss. ILHR 53.10 and 53.11.

3. The highest floor level of a permanent raised platform which is constructed in accordance with subd. 1. b. may not be more than 3 feet above the structural floor.

4. The floor coverings of permanent raised platforms shall conform with s. ILHR 51.07.

5. Spaces created between a permanent raised platform which is constructed in accordance with subd. 1. b. and the structural floor system supporting the platform may not be used for storage and other purposes, unless the platform floor system has at least a one-hour fire resistive rating.

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.

b. In buildings where the class of construction permits exterior walls to be of combustible construction, no floor level that is more than one level below the first floor framing system may have exterior walls constructed of combustible materials.

(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.

(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

## ILHR 51.02

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 unpierced. 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.

Register, March, 1995, No. 471

(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: See Appendix A for further explanatory material.

Note: 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 <sup>1</sup>	Maximum Surface Area Percentage <sup>2</sup>
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), renun. (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.

Register, March, 1995, No. 471

## ILHR 51.02

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. 6-1-74; 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, c., (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; cr. (4) (b) 1, b., Register, March, 1995, No. 471, eff. 4-1-95.

**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 1½ 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.

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; am. (6) (d) (intro.), Register, August, 1985, No. 356, eff. 1-1-86.

**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 in accordance with Table 51.08.

(2) (a) Except as provided in par. (b), any building governed by chs. ILHR 50 to 64 that is attached to a single-family residence shall have a separation that is equivalent to the most stringent fire ratings required by chs. ILHR 50 to 64 for the construction features of the building.

(b) The separation specified in par. (a) is not required where the attached residence includes construction features that provide compliance with the applicable requirements of chs. ILHR 50 to 64, including but not limited to, furnace and garage isolation, shaft enclosures, class of construction, number of stories, and distance to property lines or other buildings.

(3) Openings in occupancy separations shall be protected by fire-door assemblies as specified in s. ILHR 51.047 or by fire-window assemblies as specified in s. ILHR 51.048.

**TABLE 51.08**  
**OCCUPANCY SEPARATIONS**  
 Minimum Fire Resistive Ratings in Hours

Occupancies	Ch 54	Ch 55		Ch 56	Ch 57	Ch 58		Ch 59				Ch 60	Ch 61	Ch 62 Open Park'g Struc.
		Occu- pants ≤750	Occu- pants >750			Health Care	Deten- tion	≤500 sq ft		>500 sq ft				
								Storage	Repair	Storage	Repair			
Ch 54	0	3 <sup>a</sup>	4 <sup>a</sup>	0	i	2 <sup>a</sup>	2 <sup>b</sup>	1 <sup>d</sup>	2	2 <sup>d</sup>	3	0	0	NC-2
Ch 55 ≤750 occupants	3 <sup>a</sup>	3 <sup>e</sup>	4 <sup>e</sup>	3 <sup>f</sup>	3	3 <sup>a</sup>	3 <sup>b</sup>	3	4	3	4	3 <sup>b</sup>	3	3
>750 occupants	4 <sup>a</sup>	4 <sup>e</sup>	4 <sup>e</sup>	4 <sup>f</sup>	4	4 <sup>a</sup>	4 <sup>b</sup>	3	4	3	4	4 <sup>b</sup>	4	4
Ch 56	0	3 <sup>f</sup>	4 <sup>f</sup>	0	i	2 <sup>a</sup>	2 <sup>b</sup>	2	3	2	3	0	0	NC-2
Ch 57	i	3	4	i	i	2 <sup>a</sup>	2 <sup>b</sup>	1 <sup>c</sup>	2	2 <sup>e</sup>	3	i	i	NC-2
Ch 58 Health Care	2 <sup>a</sup>	3 <sup>a</sup>	4 <sup>a</sup>	2 <sup>a</sup>	2 <sup>a</sup>	0	2 <sup>b</sup>	3	4	3	4	2	2	NC-2
Detention	2 <sup>b</sup>	3 <sup>b</sup>	4 <sup>b</sup>	2 <sup>b</sup>	2 <sup>b</sup>	2 <sup>b</sup>	0	3	4	3	4	2	2	NC-2
Ch 59 Storage ≤500 sq ft	1 <sup>d</sup>	3	3	2	1 <sup>c</sup>	3	3	0	1 <sup>k</sup>	1 <sup>k</sup>	1 <sup>k</sup>	1	m	1 <sup>k</sup>
Repair ≤500 sq ft	2	4	4	3	2	4	4	1 <sup>k</sup>	0	1 <sup>k</sup>	1 <sup>k</sup>	2	2	1 <sup>k</sup>
Storage >500 sq ft	2 <sup>d</sup>	3	3	2	2 <sup>e</sup>	3	3	1 <sup>k</sup>	1 <sup>k</sup>	0	1 <sup>k</sup>	2	m	1 <sup>k</sup>
Repair >500 sq ft	3	4	4	3	3	4	4	1 <sup>k</sup>	1 <sup>k</sup>	1 <sup>k</sup>	0	3	3	1 <sup>k</sup>
Ch 60	0	3 <sup>h</sup>	4 <sup>h</sup>	0	i	2	2	1	1	2	3	0	0	NC-2
Ch 61	0	3	4	0	i	2	2	m	2	m	3	0	0	NC-2
Ch 62 Open Parking Structures	NC-2	3	4	NC-2	NC-2	NC-2	NC-2	1 <sup>k</sup>	1 <sup>k</sup>	1 <sup>k</sup>	1 <sup>k</sup>	NC-2	NC-2	0

Keys and Examples: NC = Noncombustible construction; 0 = 0 (No hourly rating); NC-2 = Noncombustible construction 2-hour rating

**FOOTNOTES TO TABLE 51.08:**

a. Auditoriums, chapels, residential facilities and other similar areas provided for the patients or employes of health care facilities need not be separated from the health care facility. Also, administrative offices, doctors' offices, medical clinics and laboratories which are intended primarily to provide in-house services or support to the health care facility need not be separated from the health care facility. Doctor's offices, medical clinics and other similar areas which are intended to provide out-patient services independent of the health care facility shall be separated in accordance with the table.

b. Auditoriums, chapels, residential facilities, administrative offices, medical clinics, educational facilities, workshops and other similar areas which are provided for the residents or employes of the detention facility need not be separated from the facility.

c. An occupancy separation need not be provided within a fire station or other similar facility to separate vehicles from other areas of the building, if the vehicles are directly and permanently related to the functions of the building.

d. An occupancy separation need not be provided within an office, factory or warehouse occupancy to separate a storage garage accommodating one or 2 vehicles which are directly related to the functions of that occupancy. If a storage garage accommodating one or 2 vehicles within an office, factory or warehouse occupancy is part of a multi-occupancy/multi-tenant building (i.e., strip shopping center), the occupancy separation shall be provided at least at the adjoining tenants' walls.

e. An occupancy separation need not be provided to separate 2 adjoining assembly hall areas or functions located within the same building, if the operation or control of the 2 assembly areas are under the same owner or tenant.

## ILHR 51.08

f. An occupancy separation need not be provided between a church and a day school operated by the church provided both occupancies conform with the most restrictive requirements of chs. ILHR 55 and 56.

g. An occupancy separation need not be provided between an assembly hall or theater and an instructional facility regulated under ch. ILHR 56 if the operation and control of the two occupancies is under the same owner.

h. An occupancy separation need not be provided to separate a day care center from an assembly hall occupancy, if the day care center conforms with the more stringent requirements of ch. ILHR 55.

i. See s. ILHR 57.01 concerning living unit separations.

j. Storage garages, attached to residential occupancies under the scope of ch. ILHR 57, may be separated from a residential occupancy by at least one-hour fire-resistive construction, if the storage garage is divided by walls with at least one-hour fire-resistive ratings into spaces with floor areas not exceeding 600 square feet.

k. An occupancy separation need not be provided to separate adjoining storage garages, repair garages or open parking structures which are located within the same building, if the entire building conforms to the most stringent occupancy requirements of chs. ILHR 59 and 62, subch. I.

m. Storage garages, attached to CBRF occupancies under the scope of ch. ILHR 61, may be separated from a CBRF by:

- Common walls between the garage and the CBRF protected with not less than one layer of ½-inch Type X gypsum board with taped joints, or equivalent, on the garage side and with not less than one layer of ½-inch gypsum board with taped joints, or equivalent, on the CBRF side;

- Floor-ceiling assemblies between garage and the CBRF protected with not less than one layer of ½-inch Type X gypsum board on the garage side of the ceiling or roof framing; and

- Openings between the garages and the CBRF protected by self-closing, 1½-inch solid wood core doors or with self-closing doors of equivalent fire resistive rating.

n. Public mausoleums constructed adjacent to or as part of an assembly hall need not be provided with an occupancy separation.

See s. ILHR 61.10 (2) concerning detached garages serving CBRF's.

**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; am. (2) (a) (intro.) and (b) (intro.), Register, August, 1985, No. 356, eff. 1-1-86; r. and recr. Register, February, 1991, No. 423, eff. 4-1-91; am. Table 51.08, Register, March, 1992, No. 435, eff. 4-1-92; renum (2) to be (3), cr. (2), Register, January, 1994, No. 457, eff. 2-1-94; am. Table 51.08 Footnote j, Register, March, 1995, No. 471, eff. 4-1-95.

**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; 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, 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 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 ANSI Z97.1, 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 ANSI Z97.1.

**(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 1½ inches wide and located

dance with the provisions of NFPA 72. Where smoke detectors are interconnected with the manual fire alarm system, the smoke detectors shall be wired in accordance with the provisions specified in s. ILHR 16.34.

(3) MAINTENANCE. Smoke detectors shall be maintained as follows, except as noted in s. ILHR 57.16:

(a) The owner shall be responsible for maintaining the smoke detectors and the smoke detection system in good working order;

(b) Tenants shall be responsible for informing the owner, in writing, of any smoke detector malfunction, including the need for a new battery;

(c) The owner shall have 5 days upon receipt of notice from the tenant to repair or replace the smoke detector or replace the battery; and

(d) The owner shall furnish to the tenant written notice of the responsibilities of the tenant and the obligations of the owner regarding smoke detector maintenance.

History: Cr. Register, December, 1981, No. 312, eff. 1-1-82; am. (2) and (3) (c), Register, October, 1982, No. 322, eff. 11-1-82; am. (1) and (2) (a) Register, December, 1983, No. 336, eff. 1-1-84; r. and recr. (3), Register, April, 1990, No. 412, eff. 5-1-90; am. (1) and (2), Register, January, 1994, No. 457, eff. 2-1-94.

ILHR 51.25 Incorporation of standards by reference. (1) CONSENT. Pursuant to s. 227.21, Stats., the attorney general and the revisor of statutes have consented to the incorporation by reference of the standards listed in sub. (4).

(2) COPIES. Copies of the adopted standards are on file in the offices of the department, the secretary of state and the revisor of statutes. Copies of the standards may be purchased through the respective organizations listed in Tables 51.25-1 to 51.25-21.

(3) INTERIM AMENDMENTS. Interim amendments of the adopted standards shall have no effect in the state until such time as this section is correspondingly revised to reflect the changes.

(4) ADOPTION OF STANDARDS. The standards referenced in Tables 51.25-1 to 51.25-21 are hereby incorporated by reference into this chapter.

Note: The tables in this section provide a comprehensive listing of all of the standards adopted by reference in this code. For requirements or limitations in how these standards are to be applied, refer to the code section that requires compliance with the standard.

Table 51.25-1

AA	Aluminum Association 900 19th Street NW Washington, D.C. 20006
Standard Reference Number	Title
SAS-30	Specifications for Aluminum Structures Aluminum Construction Manual, Section 1, 1986.

Table 51.25-2

ACI	American Concrete Institute P.O. Box 19150 Detroit, Michigan 48219
Standard Reference Number	Title
1. 318-89 (Revised 1992)	Building Code Requirements for Reinforced Concrete.

2. 318-1-89 (Revised 1992)	Building Code Requirements for Structural Plain Concrete.
3. 530-88/ASCE 5-88	Building Code Requirements for Masonry Structures.
4. 530.1-88/ASCE 6-88	Specifications for Masonry Structures.

Table 51.25-3

AIA	The American Institute of Architects Order Department 9 Jay Gould Court P.O. Box 753 Waldorf, MD 20601
Standard Reference Number	Title
R673	Guidelines for Construction and Equipment of Hospital and Medical Facilities, 1987 edition.

Table 51.25-4

AISC	American Institute of Steel Construction 400 North Michigan Avenue Chicago, IL 60611
Standard Reference Number	Title
S826	Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings, with Commentary, November 1, 1978, with supplement #1.

Table 51.25-5

AITC	American Institute of Timber Construction 11818 S.E. Mill Plain Blvd., Suite 415 Vancouver, Washington 98684
Standard Reference Number	Title
1. 117-87	Design Standard Specifications for Structural Glued Laminated Timber of Softwood Species
2. 119-85	Standard Specifications for Hardwood Glued Laminated Timber

Table 51.25-6

AISI	American Iron and Steel Institute 1133 15th Street, N.W., Suite 300 Washington, D.C. 20005
Standard Reference Number	Title
1. SG-671	Specification for the Design of Coldformed Steel Structural Members, August, 1986.
2.	Manual For Structural Applications of Steel Cables For Buildings, 1973.

Table 51.25-7

ANSI	American National Standards Institute, Incorporated 1430 Broadway New York, New York 10018
Standard Reference Number	Title
1. Z83.4-1989	Direct Gas-Fired Make-up Air Heaters.
2. Z83.18-1987, with Z83.18a-1987 Addenda	Direct Gas-Fired Industrial Air Heaters.
3. Z97.1-1984	Safety Glazing Materials Used in Buildings.

Table 51.25-8

APA	American Plywood Association P.O. Box 11700 7011 South 19th Street Tacoma, Washington 98460
Standard Reference Number	Title
1. PS 1-83	U.S. Product Standard for Construction and Industrial Plywood, Revised October, 1983.

Table 51.25-9

Standard Reference Number	Title
1. 81850	Handbook of Fundamentals, 1985.
2. 52-76	Methods of Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter.

Table 51.25-10

Standard Reference Number	Title
1. A6-87d	General requirements for rolled steel plates, shapes, sheet piling and bars for structural use.
2. A36-87	Structural steel.
3. A82-85	Plain steel wire for concrete reinforcement.
4. A116-87	Zinc-coated (galvanized) steel woven wire fence fabric.
5. A153-82 (1987)	Zinc coating (hot-dip) on iron and steel hardware.
6. A615-87a	Deformed and plain billet-steel bars for concrete reinforcement.
7. A616-87	Rail-steel deformed and plain bars for concrete reinforcement.
8. A617-87	Axle-steel deformed and plain bars for concrete reinforcement.
9. C22-83	Gypsum.
10. C25-88	Chemical analysis of limestone, quicklime, and hydrated lime.
11. C34-84	Structural clay load-bearing wall tile.
11a. C36-91	Specification for Gypsum Wallboard.
12. C39-86	Compressive strength of cylindrical concrete specimens.
13. C42-84a	Obtaining and testing drilled cores and sawed beams of concrete.
14. C50-86	Sampling, inspection, packing, and marking of lime and limestone products.
15. C55-85	Concrete building brick.
16. C56-71 (1986)	Structural clay non-load-bearing tile.
17. C57-57 (1983)	Structural clay floor tile.
18. C62-87	Building brick (solid masonry units made from clay or shale).
19. C67-87	Sampling and testing brick and structural clay tile.
20. C90-85	Hollow load-bearing concrete masonry units.
21. C91-87a	Masonry Cement.
22. C97-83	Absorption and bulk specific gravity of natural building stone.
23. C99-87	Modulus of rupture of natural building stone.
24. C110-87	Physical testing of quicklime, hydrated lime, and limestone.
25. C140-75 (1980)	Sampling and testing concrete masonry units.
26. C144-87	Aggregate for masonry mortar.
27. C145-75 (1981)	Solid load-bearing concrete masonry units.
28. C150-86	Portland cement.
29. C170-87	Compressive strength of natural building stone.
30. C207-79 (1984)	Hydrated lime for masonry purposes.
31. C270-88	Mortar for unit masonry.
32. C317-87	Gypsum concrete.
33. C457-82a	Microscopical determination of air-void content and parameters of the air-void system in hardened concrete.
34. C471-87	Chemical analysis of gypsum and gypsum products.
35. C472-84	Physical testing of gypsum plasters and gypsum concrete.

36. C473-87a	Physical testing of gypsum board products and gypsum lath.
37. C476-83	Grout for reinforced and nonreinforced masonry.
38. C652-87a	Hollow brick (hollow masonry units made from clay or shale).
39. C666-84	Resistance of concrete to rapid freezing and thawing.
40. C952-86	Bond strength of mortar to masonry units.
41. C956-81 (1986)	Installation of Cast-In-Place Reinforced Gypsum Concrete.
42. D245-81	Establishing structural grades and related allowable properties for visually graded lumber.
43. D635-81	Rate of burning and/or extent and time of burning of self-supporting plastics in a horizontal position.
44. D1037-87	Evaluating the properties of wood-base fiber and particle panel materials.
45. D1143-81 (1987)	Testing piles under static axial compressive load.
46. D1929-77 (1985)	Ignition properties of plastics.
47. D2843-77	Density of smoke from the burning or decomposition of plastics.
48. E72-80	Conducting strength tests of panels for building construction.
49. E84-87	Surface burning characteristics of building materials.
50. E103-87	Fire tests of roof coverings.
51. E119-88	Fire tests of building construction and materials.
52. E136-82	Behavior of materials in a vertical tube furnace at 750°C
53. E152-81a	Fire tests of door assemblies.
54. E163-84	Fire tests of window assemblies.
55. E283-84	Rate of air leakage through exterior windows, curtain walls and doors.
56. E447-84	Compressive strength of masonry prisms.
57. E648-88	Critical radiant flux of floor covering systems using a radiant heat energy source.

Table 51.25-11

Standard Reference Number	Title
1. D1.1-88	Structural Welding Code-Steel
2. D1.3-89	Structural Welding Code-Sheet Steel

Table 51.25-12

Standard Reference Number	Title
1. C1-1993	All Timber Products
2. C2-1988	Lumber, Timbers, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes
3. C4-1989	Poles - Preservative Treatment by Pressure Processes
4. C9-1993	Plywood

Table 51.25-13

Standard Reference Number	Title
1. LP-2 1988	Standards for Softwood Lumber, Timber and Plywood Pressure Treated with Water-Borne Preservatives for Above Ground Use.
2. LP-22 1988	Standards for Softwood Lumber, Timber and Plywood Pressure Treated with Water-Borne Preservatives for Ground Contact Use.

3. FDN 1988 Quality Control Program For Softwood Lumber, Timber and Plywood Pressure Treated with Water-Borne Preservatives, for Ground Contact Use in Residential and Light Commercial Foundations.

**Table 51.25-14**

FM Factory Mutual Research Corporation  
1151 Boston-Providence Turnpike  
Norwood, Mass. 02062

Standard Reference Number	Title
4450, Revised Aug 5, 1977	Approval Standard for Class I Insulated Steel Deck Roofs.

**Table 51.25-15**

GA Gypsum Association  
810 First Street NE, #510  
Washington, DC 20002

Standard Reference Number	Title
GA-600-88	Fire Resistance Design Manual

**Table 51.25-16**

NIDI Nickel Development Institute  
15 Toronto Street, Suite 402  
Toronto, Ontario, Canada M5C 2E3

Standard Reference Number	Title
9023	Stainless Steel Cold-Formed Structural Design Manual, 1974 edition

**Table 51.25-17**

NFPA National Fire Protection Association  
One Batterymarch Park  
Quincy, Massachusetts 02169

Standard Reference Number	Title
1. 10-1988	Standard for portable fire extinguishers.
2. 13-1994	Standard for the installation of sprinkler systems.
3. 13R-1994	Standard for the installation of sprinkler systems in residential occupancies up to and including four stories in height.
4. 15-1990	Standard for water spray fixed systems for fire protection.
5. 20-1987	Standard for the installation of centrifugal fire pumps.
6. 22-1987	Standard for water tanks for private fire protection.
7. 24-1987	Standard for the installation of private fire service mains and their appurtenances.
8. 25-1992	Standard for the inspection, testing, and maintenance of water-based fire protection systems.
9. 31-1987	Standard for the installation of oil-burning equipment.
10. 54-1988	National fuel gas code.
11. 71-1987	Standard for the installation, maintenance and use of signaling systems for central station service.
12. 72-1990	Standard for the installation, maintenance and use of protective signaling systems.
13. 72E-1987	Standard on automatic fire detectors.
14. 74-1989	Standard for the installation, maintenance and use of household fire warning equipment.

15. 90A-1985 Standard for the installation of air conditioning and ventilating systems.  
16. 211-1988 Standard for chimneys, fireplaces, vents and solid fuel burning appliances.  
17. 231-1990 Standard for general storage.  
18. 231C-1991 Rack storage for materials.

**Table 51.25-18**

NFPA National Forest Products Association  
1250 Connecticut Avenue, N.W., #200  
Washington, DC 20036

Standard Reference Number	Title
1. NDS	National Design Specification for Wood Construction, 1991 Edition, including Design Values for Wood Construction, a 1991 supplement to the 1991 Edition of National Design specification for Wood Construction.
2. Technical Report No.7	The Permanent Wood Foundation System, Basic Requirements, Revised January, 1987.

**Table 51.25-19**

SJI Steel Joist Institute  
Suite A  
1205 48th Ave., North  
Myrtle Beach, South Carolina 29577

Standard Reference Number	Title
	Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders, 1988.

**Table 51.25-20**

TPI Truss Plate Institute, Inc.  
583 D'Onofrio Dr., Suite 200  
Madison, Wisconsin 53719

Standard Reference Number	Title
TPI-85	Design Specification for Metal Plate Connected Wood Trusses, including 1987 Supplement and Errata Addendum Sheet.

**Table 51.25-21**

UL Underwriters Laboratories, Inc.  
Publication Stock  
333 Pfingsten Road  
Northbrook, Illinois 60062

Standard Reference Number	Title
1. 181-1981	Factory-Made Air Ducts and Connectors, including revisions dated March 19, 1984.
2. 1256-1985	Fire Test of Roof Deck Constructions.

History: Cr. Register, October, 1967, No. 142, eff. 11-1-67; cr. (88) to (93), Register, February, 1971, No. 182, eff. 7-1-71; r. (88) to (93) eff. 8-1-71 and recr. (88) to (93) eff. 1-1-72, Register, July, 1971, No. 187; r. and recr., Register, July, 1974, No. 223, eff. 1-1-75; am. (43), Register, December, 1978, No. 276, eff. 1-1-79; cr. (55), Register, May, 1980, No. 293, eff. 6-1-80; am. Register, December, 1981, No. 312, eff. 1-1-82; cr. (43a), (45a) and (45b), am. (47), Register, December, 1983, No. 336, eff. 1-1-84; am. Register, August, 1985, No. 356, eff. 1-1-86; r. and recr. Register, March, 1991, No. 423, eff. 4-1-91; am. tables 2, 15, 17, 18 and 20, Register, January, 1994, No. 457, eff. 2-1-94; am. Tables 10, 12 and 17, Register, March, 1995, No. 471, eff. 4-1-95.