Chapter Ind 51

DEFINITIONS AND STANDARDS

Note: The definitions of words and phrases not defined in this section should be taken from the current edition of Webster's New International Dictionary.

Ind 51.01 Definitions. (1) " Accessory room" means any room or enclosed floor space used for eating, cooking, bathrooms, water closet compartments, laundries, pantries, foyers, hallways and other similar floor spaces. Rooms designated as recreation, study, den, family room, office and other similar floor spaces, in addition to habitable rooms, are not considered accessory rooms.

(1a) AIR CONDITIONING. The process of treating air to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space.

(2) ALLEY. Any legally established public thoroughfare less than 30 feet in width but not less than 10 feet in width whether designated by name or number.

(3) APPROVED. Approval granted by the department under the regulations stated in this code.

(4) AREA (GROSS). The maximum horizontal projected area within the perimeter of the outside surface of walls or supports of the building or structure. Exterior cantilever open balconies are not included.

(5) AREA (NET). The occupied or usable floor area in a building but not including space occupied by columns, walls, partitions, mechanical shafts or ducts.

(5a) AREAWAY. Exterior area whose grade is below the grade (at building) and having at least one side consisting of the exterior wall of a building.

(6) ATTIC. The space not used for human occupancy located between the ceiling of uppermost story and the roof.

(7) AUTOMATIC. Automatic as applied to a fire protective device, is one which functions without human intervention and is actuated as a result of the predetermined temperature rise, rate of rise of temperature, combustion products or smoke density such as an automatic sprinkler system, automatic fire door, automatic fire shutter, or automatic fire vent.

(7a) "Automatic fire sprinkler system", for fire protection purposes, means an integrated system of underground and overhead piping designed in accordance with fire protection engineering standards. The system includes a suitable water supply, such as a gravity tank, fire pump, reservoir or pressure tank or connection beginning at the supply side of an approved gate valve located at or near the property line where the pipe or piping system provides water used exclusively for fire protection and related appurtenances and to standpipes connected to automatic sprinkler systems. The portion of the sprinkler system above ground is a network of specially sized or hydraulically designed piping installed in a building, structure or area, generally overhead, and to which sprinklers are connected in a systematic pattern. The system includes a controlling valve and a device for actuating an alarm when the system is in operation. The system is usually activated by heat from a fire and discharges water over the fire area.

(7b) "Fire suppression system" means a mechanical system designed and equipped to detect a fire, actuate an alarm and supress or control a fire using water, water spray, foam, carbon dioxide, halogenated agent or other approved suppression agent.

(8) BALCONY (EXTERIOR). An elevated platform attached to a building and enclosed on one or more sides by railings.

(9) BALCONY (INTERIOR). An open intermediate level or stepped floor. Also see "Stories, Number of."

(10) BASEMENT. A basement floor is that level below the first or ground floor level with its entire floor below exit discharge grade.

(11) BEARING WALL. See "Wall (bearing)."

(12) BUILDING.* A structure for support, shelter or enclosure of persons or property.

(13) BUILDING HEIGHT. See "Height (building)."

(14) BUTTRESS. A structural projection which is an integral part of a wall, primarily to provide resistance to lateral forces.

(15) CAVITY WALL. See "Wall (cavity)."

*See Appendix A for further explanatory material.

(16) CEILING PROTECTION. The fire protection membrane suspended beneath the floor or ceiling construction which, when included with the construction, develops the fire-resistive rating for the overall assembly.

(16a) CERTIFIED INSPECTOR. Certified inspector means an individual certified by the department to administer and enforce this code.

(17) CLOSING DEVICE (FIRE DOOR). A closing device is one which will close the door and be adequate to latch or hold, or both, hinged or sliding door in a closed position.

(a) *Automatic.* An automatic closing device is one which functions without human intervention and is actuated as a result of the predetermined temperature rise, rate of rise of temperature, combustion products or smoke density.

(b) *Self-closing.* A self-closing device is one which will maintain the door in a closed position.

(18) COMBUSTIBLE CONSTRUCTION. An assembly such as a wall, floor or roof having components of combustible material.

(19) COMBUSTIBLE MATERIAL. All materials not classified as "noncombustible" are considered combustible. This property of a material does not relate to its ability to structurally perform under fire exposure. The degree of combustibility is not defined by standard fire test procedures.

(19a) "Commercial motor vehicle" means all motor vehicles other than passenger vehicles for not more than 9 passengers.

(19b) "Community-based residential facility" means any place where 3 or more unrelated adults reside in which care, treatment or services above the level of room and board but not including nursing care are provided to persons residing in the facility as a primary function of the facility. "Community-based facility" does not include a nursing home, except that the department of health and social services may designate a category or categories of intermediate care facilities which serve fewer than 20 residents and which otherwise meet the definition of this subsection to be licensed and regulated as community-based residential facilities. The reception and care or treatment of a person in a convent or facility owned or operated exclusively by and for members of a religious order shall not constitute the premises to be a "community-based residential facility."

(20) CONCRETE. See "Types of Concrete," s. Ind 51.045 (1) (a).

(21) CONSTRUCTION. Includes all labor and materials used in the framing or assembling of component parts in the erection, installation, enlargement, alteration, repair, moving, conversion, razing, demolition or removal of any appliance, device, building, structure or equipment.

(22) CORRIDOR. An enclosed passageway in a building for public ingress and egress to and from dwelling units, rooms or other areas and leading to a lobby, foyer or exit discharge.

(22a) CORRIDOR (REQUIRED EXIT). A fire-rated enclosure beginning at the end point of maximum allowable exit distance and continuing to the exit discharge door.

Note: See line 20 of Table 51.03-A.

(23) COURT. A court is an open, exterior space providing required natural light or ventilation for the building or providing a pathway for public egress from a building exit to a public thoroughfare.

(24) COURT (INNER). An inner court is a court surrounded on all sides by walls.

(25) COURT (INNER LOT LINE). An inner lot line court is a court bounded on 3 sides by walls and on the remaining side by a lot line or property line.

(26) COURT (OUTER). An outer court is a court bounded on 3 sides with walls and on the remaining side by a street, alley or other open space not less than 15 feet wide.

(27) COURT (OUTER LOT LINE). A court with one side on a lot line or property line and opening to a street or open space not less than 15 feet wide.

(28) CURTAIN WALL. See "Wall (curtain)."

(29) DEPARTMENT. Means the department of industry, labor and human relations.

(30) DIVISION WALL. See "Wall (division)."

(31) DUCT. Any pipe, flue, or tunnel used to convey air, gases and entrained materials. An underground duct is any part of a duct that is below the surface of the ground.

(32) DUCT FURNACE. See "Furnace (duct)."

(33) ELEVATOR. See ch. Ind 4.

(34) EQUIPMENT. Self-contained systems and apparatus attached to or built into the building and used for mechanical or electrical processing, comfort, safety, sanitation, communication or transportation within a building.

(35) EXHAUST VENTILATING SYSTEM. See "Ventilating System (exhaust)."

(36) EXISTING. A building, structure, or equipment completed or in the course of construction or use or occupied prior to the effective date of applicable rules of this code.

(36a) "Exit" means that portion of a means of egress which is separated from all other spaces of the building or structure by construction providing a protected way of travel to the exit discharge.

(36b) "Exit access" means that portion of a means of egress which leads to an entrance to an exit.

(36c) "Exit access door" means any door that leads to the exit access.

(37) EXIT COURT. See "Court (exit)."

(37a) "Exit discharge" means that portion of a means of egress between the termination of an exit and a street, alley, court or a public way.

(38) EXIT DISCHARGE GRADE. See "Grade (exit discharge)."

(38a) "Exit door" means a door that leads from that portion of a means of egress known as the exit access to the outside of a building or to a required exit, such as a stairway, smokeproof tower, ramp or horizontal exit.

mined in accordance with ASTM E648-78 — Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

(e) "Class II interior floor finish" includes and material with a minimum critical radiant flux of 0.22 watts per square centimeter as determined in accordance with ASTM E648-78 — Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

(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.

(79a) MANUFACTURED MULTI-FAMILY DWELLING. Manufactured multi-family dwelling means any structure or component which is intended for use as a multi-family dwelling and for which certification is sought by the manufacturer, and which is of open or closed construction, fabricated or assembled on-site or off-site in manufacturing facilities for installaion, or assembly and installation at the building site. For purpose of this code, a manufactured multi-family dwelling means 3 or more living units attached together, or 2 or more living units and a business occupancy attached together.

(80) 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.

(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 OR MEZZANINE FLOOR. An intermediate floor, either open or enclosed. Also see "Stories, Number of."

(82a) "Mini-warehouse" means an unoccupied compartmentalized warehouse building having one or more overhead doors serving each compartment.

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

(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) listed below. 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 1,382D F. for a minimum period of 5 minutes, and do not cause a temperature rise of the surface or interior thermocouples in excess of 54D 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 ⅛ inch thick which has a flame-spread classification (FSC) not greater than 50 when tested in accordance with the method of test for surface burning characteristics of building materials (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. Ind 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.

(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.

(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. An enclosed or partially enclosed structure extending above the main roof of a building or structure and/or 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 of lodging purposes by 3 or more persons not members of the same family.

(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 or any building, and having a roof and floor. (See also "Terrace" and "Balcony.")

(104) PROPERTY LINE. A legally established line dividing one lot, plot of land or parcel of land under one ownership from an adjoining lot or plot of land or parcel of land under another ownership.

(104a) PUBLIC BUILDING. The term "public building" means and includes 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.

(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.

(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 D 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) "Row houses" means a place of abode not more than 3 stories in height, arranged to accomodate 3 or more attached row living units in which each living unit is separated from the adjoining unit by a vertical occupancy separation of not less than one-hour fire-resistive construction, extending from the basement or lowest floor to the under side of the roof deck.

(114b) RURAL SCHOOL BUILDING. A rural school building is a building used solely for instructional purposes, is located outside of the corporate limits of a city or village, is not more than one story in height and contains not more than 2 classrooms.

(115) SETBACK.* Refers to the open space between the property line or public thoroughfare and the nearest part of the building. Unenclosed terraces, slabs, or stoops without roofs or walls may project into this open space or setback.

(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.

(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 vented, self-contained free-standing or wall recessed heating appliance.

*See Appendix A for further explanatory material.

(120a) STEP. Step is a unit consisting of one riser of not more than 7¾ inches and one tread of not less than 9½ inches, alone or in a series.

(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 Ind 51.02 (14).)

(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.

(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.

(130a) "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 propellor fan or fans.

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

*See Appendix A for further explanatory material.

(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 employes 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.

(138) VENTILATION (MECHANICAL). The process of supplying or removing air by power-driven fans or blowers.

(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, penthouses, 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.

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

*See Appendix A for further explanatory material.

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

(146) 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.

(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.

(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.

Standards for Classes of Construction

Ind 51.015 Scope. This section covers minimum standards for common types of building designs currently being constructed. This section does not specifically include classification for uncommon building designs such as shells, domes, space frames, inflatable and similar types of

*See Appendix A for further explanatory material.

(2) (a) The minimum fire-resistive protection of a connection shall be equal to the maximum required for the members to which it is attached.

(3) For structural components with a fire-resistive rating obtained by test with restrained ends, the supporting structure shall be designed to provide for this restraint.

(4) (a) All products manufactured and tested according to ASTM standard methods prior to effective dates of standards specified in "Fire-Resistive Standards for Materials of Construction" shall be accepted unless the ASTM standard method used in the test is judged to be inadequate in comparison with the currently adopted standard method.

(5) The heat transmission requirements of ASTM E-119 (25b), with the exception of high hazard areas, penal and health care facilities and warehouses for combustible materials, may be reduced to one-half (½) of the hourly rating required by this code, but not less than one hour.

Note: For ASTM E-119 Standard adopted see Ind 51.25 (49).

Note: See s. A 52.015 of Appendix A for additional information pertaining to high hazard occupancies.

(a) The fire-resistive rating for structural integrity required by this code shall be maintained where the heat transmission criteria has been reduced.

(6) The use of fire-resistive protection implies consent by owner to maintain material in a serviceable condition. Where this protection is concealed, provisions shall be made for periodic visual inspection of the structural insulating material at each story.

(7) In one-hour fire-resistive rated construction, the ceiling may be omitted over unusable crawl space not more than 42 inches in height and the flooring may be omitted where unusable space occurs above.

History: Cr. Register, February, 1971, No. 182, eff. 7-1-71; r. eff. 8-1-71, and recr. eff. 1-1-72, Register, July, 1971, No. 187; cr. (7), Register, December, 1981, No. 312, eff. 1-1-82.

Ind 51.043 Approved rating methods. (1) Ratings of fire-resistive assemblies shall be determined by one of the following methods:

(a) Test by approved testing laboratories (see Ind 51.044).

(b) Typical examples as listed in this code in lieu of approved test (see Ind 51.045).

(c) Approved method of calculation in lieu of approved test (see Ind 51.046).

History: Cr. Register, February, 1971, No. 182, eff. 7-1-71; r. eff. 8-1-71, and recr. eff. 1-1-72, Register, July, 1971, No. 187.

Ind 51.044 Approved testing laboratories. Fire rating tests conducted by recognized testing laboratories in accordance with the ASTM standards specified in Table 51.044 shall be accepted.

TABLE 51.044

Name of Recognized Laboratories	ASTM Standard Tests						
	E-84	E-108	E-119	E-136	E-152	E-163	E-648
Forest Prod. Lab., Madison, WI*	—	—	X	—	X	—	—
Hardwood Plywood Mfgrs. Assoc., Reston, VA	X	—	—	X	—	—	X
Nat'l. Bureau of St'd., Washington, DC	—	—	X	X	—	—	—
Ohio State Univ., Columbus, Ohio	—	—	X	X	X	X	—
Portland Cement Assoc., Skokie, IL	—	—	X	—	—	—	—
Southwest Research Inst., San Antonio, Texas	X	—	—	—	—	—	—
Underwriters' Lab., Inc., Chicago, IL	X	X	X	—	X	X	—
Underwriters' Lab., Inc., Scarborough, Ont., Canada	X	X	X	X	X	X	—
Univ. of Calif., Berkeley, California	—	X	X	—	—	X	—
U.S. Testing Co., Hoboken, NJ	—	X	X	—	—	X	—
Warnock Hersey Intnl-Inc., Antioch, California	X	—	X	—	X	X	—

* Reference based on research and development data. Facility is not available for conducting routine rating tests.

Note #1: See ss. Ind 51.25 (47)-(50), (52)-(53) and (55) for test information and specific standards adopted.

Note #2: Other testing laboratories will be recognized as an approved agency if accepted in writing by the department.

History: Cr. Register, February, 1971, No. 182, eff. 7-1-71; r. eff. 8-1-71, and recr. eff. 1-1-72, Register, July, 1971, No. 187; am. Register, December, 1977, No. 264, eff. 1-1-78; am. table, Register, December, 1978, No. 276, eff. 1-1-79; r. and recr., Register, December, 1981, No. 312, eff. 1-1-82.

Ind 51.045 Typical examples of fire-resistive structural components. (1) Basic design and construction for specified fire-resistive protection of structural components listed in table 2, including references (a) through (q), shall be acceptable.

Note: The following table is based on performance, interpretation of various test data or data from ASTM E-119 test (see table 2).

(a) Types of concrete. 1. Type I—normal weight concrete with limestone, calcareous gravel and air-cooled slag aggregate.

2. Type II—normal weight concrete with siliceous gravel, granite or quartz aggregate containing more than 40% quartz, chert or flint. Values given for type I apply except where values are tabulated for type II.

(f) *Size.* No required standpipe shall be less than 4 inches in diameter, and not less than 6 inches in diameter for standpipes in excess of 100 feet in height unless the building is completely sprinklered and the standpipe system is hydraulically designed in accordance with the requirements of sub. (6).

(g) *Hose valves and connections.* An approved 2½-inch hose-connection valve shall be located at each story, not less than 3 feet nor more than 6 feet above the floor level. Hose-connection valves shall be equipped with a tight-fitting cap on a chain and having lugs for a spanner wrench. When the building is completely sprinklered, and class II service is omitted, each standpipe outlet location shall be equipped with a 2½-inch hose valve, a 2½-inch by 1½-inch reducer, and a cap with an attached chain.

(h) *Hose threads.* All threads on hose connections shall be of national standard dimensions.

Note: Section 213.15, Stats., requires that all hose connections be fitted with the national standard hose threads adopted by the national fire protection association.

(i) *Fire department connection.* An approved fire department connection shall be installed on a 4-inch or larger pipe connection with each standpipe system. The connection shall be marked " Standpipe". If automatic fire sprinklers are also supplied by the hose connection, the sign shall read "Standpipe and Automatic Sprinkler". The elevation of the connection may be not less than 18 inches nor more than 42 inches above the sidewalk or ground. If municipal water is available at the building site, the fire department connection shall be located as close as possible to and within 150 feet of any fire hydrant.

(j) *Automatic water supply.* An automatic water supply for a wet standpipe system shall be designed to provide not less than the following capacity from top outlets at not less than 65 psi flowing pressure for a period of 30 minutes; 500 gpm for a single standpipe; 750 gpm for 2 interconnected standpipes; 1,000 gpm for larger systems. Any of the following supplies will be acceptable:

1. Public waterworks system where pressure and discharge capacity are adequate;

2. Approved automatic fire pump (or pumps);

3. Pressure tank;

4. Gravity tank;

5. Approved manually controlled fire pump operated by remote control devices at each hose outlet; or

6. Reservoirs.

(k) *Dry standpipes.* If only one standpipe is required, a dry standpipe may be used. A dry standpipe shall be limited to a single riser and shall not exceed 150 feet in height.

(4) CLASS II - FIRST-AID STANDPIPES. (a) *Where required.* First-aid standpipes shall be provided as required by the occupancy chapters of this code.

Note: See ss. Ind 54.15, 55.33, 56.20 and 57.21.

(b) *Number and location.* Standpipes shall be sufficient in number so that any part of every floor area, including basements, can be reached within 30 feet by a nozzle attached to not more than 100 feet of hose connected to a standpipe.

1. Hose outlets shall be located in occupied areas and preferably in corridors or at interior columns.

(c) *Size.* No required standpipe shall be less than 2 inches in diameter for buildings 4 or less stories or 50 feet in height, and not less than 2½ inches in diameter for buildings exceeding 4 stories or 50 feet in height.

(d) *Hose valves and connections.* An approved 1½-inch hose valve shall be located not more than 5 feet above the floor level. Where the static pressure at any standpipe hose outlet exceeds 100 psi, an approved device shall be installed at the outlet to reduce the pressure with the required flow at the outlet to not more than 100 psi.

(e) *Hoses.* Not more than 100 feet of hose shall be attached to each outlet. Hoses shall be of an approved type, 1½-inches in diameter, with ½-inch solid stream or combination nozzle attached, and shall be located in approved cabinets, racks or reels. In locations where the use of a solid stream may contribute to the spread of fire by scattering the burning material or where the existence of flammable liquids make the use of spray stream desirable, combination nozzles which give a spray or a solid stream shall be provided instead of ½-inch nozzles.

(f) *Water supply.* An automatic water supply shall be provided. The water supply shall be designed for 100 gpm for 30 minutes with 65 psi flowing pressure at the top outlet. The water supply may be from a city connection, gravity tank, pressure tank or pump.

Note #1: The department will permit the domestic water supply to service class II standpipes provided no intervening control valves are installed to interrupt the service of the standpipe and a check valve is installed to prevent contamination of the domestic water supply.

Note #2: The department will permit pumps, other than fire pumps, provided the water supply meets the requirements of s. Ind 51.21 (4) (f).

Note #3: See ch. H 62, Wis. Adm. Code, for requirements pertaining to cross connections.

(5) CLASS III — COMBINED FIRE DEPARTMENT AND FIRST-AID STANDPIPES. (a) *Where permitted.* The features of class I and II service may be combined in a single system if served by an acceptable automatic water supply conforming to the requirements of sub. (3) (j).

(b) *Requirements.* Class III standpipes shall conform to the requirements of class I service except that 1½-inch outlets with a hose and 2½-inch outlets shall be provided on each floor and shall be installed to the requirements of the respective classes of service.

(6) COMBINED AUTOMATIC SPRINKLER AND STANDPIPE SYSTEM. (a) *Definition.* A combined system is a system where the vertical water piping serves both the automatic sprinkler system and the 2½-inch hose outlets of the standpipes used by the fire department. The combined system shall comply with the automatic sprinkler requirements of s. Ind 51.23 and the standpipe and hose requirements of s. Ind 51.21.

(b) *Water supply and riser size.* The minimum water supply and riser size for a combined system shall comply with the requirements of sub. (3) (f) and (j), except the minimum water supply for a combined system for a completely sprinklered, light hazard occupancy building shall be 500 gallons per minute. When the building is completely sprinklered, the risers may be sized by hydraulic calculations.

Note: NFPA No. 13—Standard for Installation of Sprinkler Systems, defines light hazard occupancy as occupancies where the quantity and/or combustibility is low and fires with relatively low rates of heat release are expected, such as: churches; clubs; educational; hospitals; institutional; libraries, except large stack rooms; museums; nursing or convalescent homes; offices, including data processing; residential; restaurant seating areas; theaters and auditoriums, excluding stages and proscenium.

(c) *Connections.* Each connection from a vertical riser of a combined system shall be provided with an individual control valve of the same size as the outlet.

(7) MAINTENANCE. Standpipe systems and equipment, whether required by this code or not, shall be maintained in an operable condition.

History: 1-2-56; r. and recr. Register, December, 1976, No. 252, eff. 1-1-77; am. (7), Register, December, 1978, No. 276, eff. 1-1-79; am. (3) (i), Register, June, 1983, No. 330, eff. 7-1-83.

Ind 51.22* Fire extinguishers. (1) GENERAL. All required fire extinguishers shall be approved by the department, and shall comply with the provisions of NFPA No. 10-1978 — Standard for Portable Fire Extinguishers. FP

(2) INSTALLATION. Fire extinguishers as specified in chs. Ind 54-62 shall be installed as specified in NFPA No. 10-1978 — Standard for Portable Fire Extinguishers.

(3) MAINTENANCE. All portable fire extinguishers, whether required by chs. Ind 54-62 or not, shall be maintained in operable condition as specified in NFPA No. 10-1978 — Standard for Portable Fire Extinguishers.

History: 1-1-56; am. Register, October, 1967, No. 142, eff. 11-1-67; r. and recr. Register, December, 1981, No. 312, eff. 1-1-82.

Ind 51.23 Automatic sprinklers. (1) GENERAL REQUIREMENTS. (a) All automatic fire sprinkler systems shall be designed and installed in accordance with NFPA No. 13-1980, Standard for the Installation of Sprinkler Systems.

(b) The sprinkler system shall be so installed and maintained as to provide complete coverage for all portions of the building.

(c) Reinstallation of used sprinkler heads shall be prohibited.

(d) Approved secondhand devices other than sprinkler heads may be installed by special permission of the department.

Note: The department will accept equipment, materials and devices listed or labeled by Underwriters' Laboratories or approved by Factory Mutual. Other testing laboratories or inspection agencies will be recognized as an approved agency if accepted in writing by the department.

*See Appendix A for further explanatory material.

(2) WATER SUPPLY. (a) Approved automatic water supplies for the FP sprinkler system recognized by the department are listed below:

1. City water main;

2. Gravity or pressure tank;

3. Ground storage reservoir; or

4. Natural bodies of water approved by the department (lakes, rivers, streams, etc.).

(b) If the water supply has inadequate pressure, an approved fire pump or tank shall be provided. The design and installation of water supply facilities for gravity tanks, fire pumps, reservoirs or pressure tanks, and underground piping shall conform to NFPA No. 22, Standard for Water Tanks for Private Fire Protection; NFPA No. 20, Installation of Centrifugal Fire Pumps; and NFPA No. 24, Outside Protection [Ind 51.27 (7a)].

(3) BASEMENT SPRINKLERS. Every basement sprinkler system shall also include sprinklers in all shafts (except elevator shafts) leading to the story above.

(4) FIRE DEPARTMENT CONNECTION. Every sprinkler system shall have an approved fire department connection as specified in NFPA 13-1980. The connection shall be marked "Sprinkler". If standpipes are also supplied by the hose connection, the sign shall read "Standpipe and Automatic Sprinkler". The elevation of the connection shall be not less than 18 inches nor more than 42 inches above the sidewalk or ground. If municipal water is available at the building site, the fire department connection shall be located as close as possible to and within 150 feet of any fire hydrant.

(5) SPRINKLER ALARMS. Every sprinkler system shall be provided with a suitable audible alarm. In all buildings over 60 feet in height, each sprinkler system on each floor shall be equipped with a separate water flow device connected to an alarm system.

(6) MAINTENANCE. All installed automatic sprinkler systems, whether required by this code or not, shall be properly maintained for efficient service pursuant to NFPA No. 13A-1981—Standard for the Care and Maintenance of Sprinkler Systems. Owners or operators shall be responsible for the condition of their sprinkler system and shall use due diligence in keeping the system in good operating condition. A copy of the inspection report as specified in NFPA No. 13A-1981 shall be kept and shall be made available, upon request, to the department or its authorized deputies.

Note: See ss. ILHR 81.10 (6) and ILHR 81.11 (9) and s. 145.165, Stats., for additional requirements pertaining to maintenance and repair or automatic fire sprinkler systems.

(7) PARTIAL AUTOMATIC FIRE SPRINKLER SYSTEMS. Partial automatic fire sprinkler systems may be connected without a fire department connection to the domestic water supply service or a first-aid standpipe or a fire department standpipe provided the following conditions are satisfied:

(a) The number of sprinkler heads per building does not exceed 20;

(b) The connection is equipped with an approved indicating valve with a monitor or an approved locking device and a check valve;

(c) The water pressure and volume is adequate to supply the required flow of the largest number of sprinkler heads in any one of the enclosed areas; and

(d) An audible alarm is provided to sound when the system is in operation.

Note: See ch. ILHR 82 for requirements pertaining to cross connections.

(8) SUBSTITUTE AUTOMATIC FIRE SUPRESSION SYSTEMS. When approved by the department, substitute automatic fire suppression systems may be used in lieu of an automatic fire sprinkler system in areas where the use of water could cause unusual damage to equipment, or where water may have a limited effect or may be hazardous to use because of the nature of processes involved.

History: 1-2-56; r. and recr. Register, December, 1974, No. 228, eff. 1-1-75; cr. (7) (a), Register, December, 1976, No. 252, eff. 1-1-77; am. (6), Register, December, 1981, No. 312, eff. 1-1-82; r. and recr. (1), (4), (6) and (7), cr. (8), Register, June, 1983, No. 330, eff. 7-1-83.

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(6) American Welding Society, 2501 NW 7th Street, Miami, Florida 33125, STRUCTURAL WELDING CODE, AWS D1.1-81; SPECIFICATION FOR WELDING SHEET STEEL IN STRUCTURES, AWS D1.3-78.

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(13) Air Conditioning and Refrigeration Institute, 1815 North Ft. Meyer Drive, Arlington, Virginia 22209, STANDARD FOR AIR FILTER EQUIPMENT, ARI STANDARD 680-80.

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(15) Underwriters' Laboratories, Inc., 333 Pfingsten Road, Northbrook, Illinois 60062, FACTORY MADE AIR DUCT MATERIAL

AND AIR DUCT CONNECTORS, UL STANDARD No. 181-1981, sixth edition including revisions dated September 16, 1981.

History: Cr. Register, July, 1974, No. 223, eff. 1-1-75, am. (5) and (10), cr. (7a), Register, December, 1974, No. 228, eff. 1-1-75; am. (2) and r. (7), Register, December, 1976, No. 252, eff. 1-1-77; cr. (6a) and am. (8), Register, December, 1978, No. 276, eff. 1-1-79; am. (10), Register, February, 1979, No. 278, eff. 3-1-79; am. (2), (6), (7a), (9) and (10), Register, January, 1980, No. 289, eff. 2-1-80; am. (1) and (3) to (10), r. and recr. (11), cr. (12) to (15), Register, December, 1981, No. 312, eff. 1-1-82; cr. (12) to (15), Register, February, 1982, No. 314, eff. 3-1-82; am. (7a), Register, October, 1982, No. 322, eff. 11-1-82; am. (7a), Register, June, 1983, No. 330, eff. 7-1-83.