

Chapter Ind 50
SCOPE OF BUILDING CODE

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Ind 50.001 Purpose of code. The purpose of this code is to promote the health, safety and welfare of the public by establishing performance minimums contained therein for design, construction, alteration, use and occupancy of buildings and parts thereof.

Note 1: The purpose as stated can be traced to the terms used in the "Safe Place statutes" of the state of Wisconsin, chapter 101, Wis. Stats.
Note 2: This code is intended for the protection of the public and not intended as a design manual, a text book nor a construction manual.

History: Cr. Register, December, 1970, No. 180, eff. 1-1-71.

Ind 50.002 Application. (1) **NEW BUILDINGS AND ADDITIONS.** This code shall apply to all new buildings, structures, and also to additions to existing buildings and structures, except as in Wis. Adm. Code, section Ind 50.03.

(2) **EXISTING BUILDINGS.** Buildings and structures erected prior to the effective date of the first building code (October 9, 1914) shall comply with the general orders on existing buildings, issued by the department of industry, labor and human relations.

History: 1-2-56; renum. from Ind 50.001 to be Ind 50.002, Register, December, 1970, No. 180, eff. 1-1-71.

Ind 50.01 Alterations. This code shall apply to all alterations in any building or structure which affects the structural strength, fire hazard, exits or lighting of any new or existing building or structure. This code does not apply to ordinary non-structural changes or minor repairs necessary for the maintenance of any building or structure.

History: 1-2-56; am. Register, December, 1962, No. 84, eff. 1-1-63.

Ind 50.02 Change of use. (1) When the use of a building or structure is changed and the requirements for the new use are more stringent than those for the previous use then such building or structure shall be made to comply with the requirements for the new use as provided in this code.

(2) If, upon an inspection of a building or structure, it is found that its use was changed since the effective date of the first building code (October 9, 1914) and that it does not comply with the requirements of the building code in effect at the time of such change, it shall then be made to comply with the code requirements in effect at the time of change in use.

Ind 50.03 Exemption from code requirements. This code does not apply to the following buildings:

(1) Dwellings, and outbuildings in connection therewith, such as barns and private garages.

(2) Apartment buildings used exclusively as the residence of not more than 2 families.

(3) Buildings used exclusively for agricultural purposes which are not within the limits of a city or an incorporated village.

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(4) Temporary buildings or sheds used exclusively for construction purposes, not exceeding 2 stories in height, and not used for living quarters.

Ind 50.04 Local regulations. This code shall not limit the power of cities, villages and towns to make, or enforce, additional or more stringent regulations, provided the same do not conflict with this code or with any other rule of the department of industry, labor and human relations.

Enforcement

Ind 50.10 Approval of plans and specifications. (1) Complete plans and specifications for all buildings and structures in the following classifications shall be submitted to the department of industry, labor and human relations for approval before letting contracts or commencing work.

- (a) Theaters and assembly halls.
- (b) Schools and other places of instruction.
- (c) Apartment buildings, hotels and places of detention.
- (d) Hazardous occupancies.
- (e) Factories, office and mercantile buildings.

(2) The submission of plans and specifications for factories, office and mercantile buildings containing less than 25,000 cubic feet total volume is waived, providing they have no floor or roof spans greater than 30 feet and are not more than 2 stories high. Buildings for which the submission of plans and specifications is waived shall comply with the requirements of this code.

(3) All plans shall be submitted in triplicate and work shall not be started until plans are approved. Complete foundation and footing plans may be submitted for approval prior to submitting the building plans if the plot plan, itemized structural loads, complete foundation or footing design calculations and schematic floor plans are included showing exits, windows and other pertinent information. The following data shall be a part of or shall accompany all plans submitted for approval. Items (h) and (i) need not accompany foundation and footing plans submitted prior to final building plans.

- (a) The location and grades of adjoining streets, alleys, lot lines and any other buildings on the same lot or property.
- (b) Name of owner.
- (c) Intended use or uses of all rooms, and the number of persons to be accommodated therein.
- (d) Assumed bearing value of soil.
- (e) Assumed live loads.
- (f) Assumed dead loads, itemized.
- (g) Assumed unit stresses for structural materials.
- (h) Stress diagrams for all trusses.
- (i) Typical calculations for slabs, beams, girders and columns.

(4) Complete structural calculations shall be furnished upon request of the department of industry, labor and human relations or other authorized approving official. All plans and specifications shall be sealed or stamped by a registered architect or registered professional engineer except that plans for buildings having a total volume of less than 50,000 cubic feet shall be signed by the designer.

(a) All panels over 6 feet in width shall be supported on each side by chases, not less than 1½ inches in depth, of metal or other incombustible material.

(b) Approved continuous metal bond ties shall be provided in each horizontal mortar joint for block of nominal 12 x 12 inch size and in at least every third joint for block of smaller dimension.

(c) Provision shall be made in all panels for expansion, using approved expansion material not less than ½ inch thick for heads and lintels and not less than ¼ inch thick for jambs.

Ind 51.12 Height of building. The height of a building is measured at the center line of its principal front, from the sidewalk grade (or, if setting back from the sidewalk, from the grade of the ground adjoining the building) to the highest part of the roof, if a flat roof, or to a point 2/3 of the height of the roof, if a gabled or hipped roof. If the grade of the lot or adjoining sidewalk in the rear or alongside of the building falls below the grade at the front, the height shall be measured at the center of the lowest side.

Ind 51.13 Basement; first floor; number of stories. A basement is a story whose floorline is below grade at any entrance or exit and whose ceiling is not more than 5 feet above grade at any such entrance or exit. The first floor is the floor next above the basement, or the lowest floor if there is no basement. The number of stories of a building includes all stories except the basement.

Ind 51.14 Street; alley; court. (1) A street is any public thoroughfare 30 feet or more in width.

(2) An alley is any public thoroughfare less than 30 feet, but not less than 10 feet, in width.

(3) A court is an open, unoccupied space other than a street or alley and bounded on one or more sides by the walls of a building.

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

Note: For required exits see Wis. Adm. Code sections Ind 54.06, 55.10, 56.08 and 57.09.

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

(3) A standard exit door shall have such fastenings or hardware that it can be opened from the inside without using a key, by pushing against a single bar or plate, or turning a single knob or handle. It shall not be barred or bolted at any time while the building is occupied.

(4) A standard exit doorway shall not be less than 6 feet 4 inches high by 3 feet 4 inches wide, except where especially provided under occupancy classifications and in Wis. Adm. Code section Ind 51.20. Where double doors are provided with or without mullions, the width of each single door may be reduced to 2 feet 6 inches.

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

(6) Doors, windows or other openings which are not exits but which give the appearance of exits shall be effectively guarded.

(a) *Glass doors.* All glass doors shall be provided with a push bar or plate inside and outside. The push bar or plate shall be within 32 inches to 44 inches above the floor.

(b) *Glass walls panels.* Glass wall panels having a curb or sill less than 24 inches in height shall be protected by a horizontal bar or rail at least 1½ inches wide and located within 3 feet 6 inches to 4 feet 6 inches above the floor. The bar or rail assembly shall be capable of withstanding a lateral force of 100 pounds applied at any point.

(7) Safeguards for physically handicapped persons:

(a) Any place of employment or public building, the initial construction of which is commenced after July 1, 1970, shall be so designed and constructed as to provide reasonable means of ingress and egress by the physically handicapped with the exception of:

1. Apartment houses with less than 20 units, row houses and rooming houses;
2. Convents and monasteries;
3. Jails or other places of detention;
4. Garages, hangars and boathouses;
5. All buildings classified as hazardous occupancies;
6. Warehouses, and
7. State buildings specifically built for field service purposes such as but not limited to conservation fire towers, fish hatcheries, tree nursery buildings.
8. University residence halls at universities which have at least three residence halls for men and three residence halls for women so constructed as to allow physically handicapped persons reasonable means of ingress and egress to such buildings.

(b) The requirements of section Ind 51.15 (7) (a) may be accomplished by at least one ground or street level entrance and exit without steps.

The entrance and exit shall be by:

1. Ramps with slopes not more than one foot of rise in 12 feet coated with a nonskid surface, or
2. By elevator or such other arrangements as may be reasonably appropriate under the circumstances and which meets with the approval of the department of industry, labor and human relations or

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in lieu thereof with the approval of the municipality wherein the building is located.

3. Doors having a clear opening of at least 40 inches in width and shall otherwise conform to the department of industry, labor and human relations building code.

(c) If any ground or street level entrance or exit is not so designed or constructed a sign shall be placed at such entrance or exit indicating the location of the entrance or exit available for wheel chair service.

(d) Where requirements of section Ind 51.15 (7) (a) apply, there shall be reasonable means of access from a parking lot, if any, ancillary to such buildings and reasonable means of ingress and egress to at least one floor on which the primary business of such building is located.

(e) The ramp shall be at least 4 feet in width of which not more than 4 inches on each side may be occupied by a handrail.

(f) All ramps shall have a handrail on each side.

1. Handrail shall be not less than 2 feet 6 inches in height with an intermediate rail at mid height.

(g) The floor on the inside and outside of each ramp doorway shall be level for a distance of 6 feet from the door.

(h) Every ramp shall have at least 6 feet of level clearance at the bottom.

(i) All ramps shall have a level platform at 30 feet intervals and shall have a level platform at least 6 feet in length wherever they turn.

(j) The requirements of section Ind 51.15 (7) (a) through (i) shall apply to buildings presently exempt or existing should there be a change in occupancy of such building to that of a place of employment or public building not otherwise exempt after July 1, 1970.

Note: See section Ind 52.59 for further requirements.

History: 1-2-56; am. Register, December, 1962, No. 84, eff. 1-1-63; am. (5) and cr. (7), Register, November, 1963, No. 95, eff. 12-1-63; r. and recr., Register, October, 1967, No. 142, eff. 11-1-67; am. (7) (j), Register, May, 1968, No. 149, eff. 6-1-68; r. and recr. (7), Register, December, 1970, No. 180, eff. 1-1-71.

Ind 51.16 Stairways. (1) DEFINITION. By a stairway is meant one or more flights of steps and the necessary platforms connecting them to form a continuous passage from one level to another within a building or structure, except as provided in subsection (3) (b).

(2) WIDTH. Every required exit stairway, whether enclosed or not, shall be not less than 3 feet 8 inches wide of which not more than 4 inches on each side may be occupied by a handrail. Every platform shall be at least as wide as the stairway, measuring at right angles to the direction of travel. Every straight run platform shall measure at least 3 feet in the direction of travel. Wherever a door opens onto a stairway, a platform shall be provided extending at least the full width of the door in the direction of travel. *Exception:*

(a) In apartment buildings not more than 2 stories in height and having not more than 2 apartments on a floor and in rooming houses,

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hospitals, hotels and similar buildings not more than 2 stories in height and having not more than 6 living or sleeping rooms on a floor, such stairways shall not be less than 3 feet wide.

(b) If other stairways are provided in addition to those required by this code, such additional stairways need not conform to the width requirements of this code.

(3) **HANDRAILS.** All stairways and steps of more than 3 risers shall have at least one handrail. Stairways and steps 5 feet or more in width, or open on both sides, shall have a handrail on each side. Stairways and steps which are less than 5 feet in width shall have a handrail on the left hand side as one mounts the stairs and on the open side, if any.

(a) Stairways which are more than 8 feet wide shall be divided by center rails into widths not more than 8 feet nor less than 3 feet 8 inches. Rails shall be not less than 2 feet 6 inches above the nose of the treads or 3 feet 6 inches above the platform except as specified in Wis. Adm. Code section Ind 51.20. Railings on the open sides of stairways and platforms shall be provided with an intermediate member at midheight or with vertical members having a maximum spacing of 11 inches, or its equivalent in safety.

(b) Stairways on the outside of buildings and an integral part thereof, having more than 3 risers, shall have a handrail at each side, and if the stairway is more than 50 feet wide, one or more intermediate handrails shall be provided.

(c) Where an exit door leads to an outside stairway, platform or sidewalk, the level of the platform or sidewalk shall not be more than 7 $\frac{1}{2}$ inches below the door sill except as provided in section Ind 51.20 (4) (g).

(4) **RISERS AND TREADS.** All stairways and steps required as exits by this code shall have a uniform rise of not more than 7 $\frac{1}{2}$ inches and a uniform tread of not less than 9 $\frac{1}{2}$ inches, measuring from tread to tread, and from riser to riser. No winders shall be used. There shall not be more than 18, nor less than 3 risers between platforms or between floor and platform and not more than 22 risers from floor to floor with no platform.

(a) Stairways and steps not required as exits by this code shall have a uniform rise of not more than 8 inches and a uniform tread of not less than 9 inches. If winders are used, the tread shall be at least 7 inches wide at a point one foot from the narrow end.

(b) For stairways to elevated walks, platforms and runways in places of employment see section Ind 1.17 of the general orders on safety issued by the department of industry, labor and human relations.

(c) The edges of all treads and the edges of all stairway landings shall be finished with a non-slippery surface not less than 3 inches in width.

History: 1-2-56; am. (2); (2) (a); (2) (b); Register, June, 1956, No. 6, eff. 7-1-56; r. and rec. Register, September, 1959, No. 45, eff. 10-1-59.

Ind 51.17 Smokeproof stair tower. (1) A smokeproof stair tower shall be an enclosed stairway which is entirely cut off from the build-

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ing and which is reached by means of open balconies or platforms. The stairways, landings, platforms and balconies shall be of incombustible material throughout. The enclosing walls shall be of not less than 4-hour fire-resistive construction as specified in section Ind 51.05, and the floors and ceilings of not less than 2-hour fire-resistive construction as specified in section Ind 51.06.

(2) The doors leading from the buildings to the balconies and from the balconies to the stairways shall be fire-resistive doors as specified in section Ind 51.09, and all openings within 10 feet of any balcony shall be protected with fire-resistive windows as specified in section Ind 51.10, or fire-resistive doors.

(3) Each balcony shall be open on at least one side, with a railing not less than 3'6" high on all open sides.

History: 1-2-56; am. Register, December, 1962, No. 84, eff. 1-1-63.

Ind 51.18 Interior enclosed stairway. (1) An interior enclosed stairway shall be completely enclosed with walls of not less than 2-hour fire-resistive construction as specified in section Ind 51.05, except that in ordinary or frame buildings and in mill or fire-resistive buildings not more than 3 stories in height one-hour fire-resistive enclosures may be used. All doors opening into such enclosures shall be as specified in section Ind 51.09.

(2) The enclosure shall include at each floor level a portion of such floor which will be at least as wide as the stairway; and such enclosure shall also include the passageway of the first floor level (if



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built of concrete masonry units or clay tile, such units shall conform to the requirements of Ind 53.06.

(2) **INTERIOR NONBEARING WALLS.** Interior nonbearing masonry walls may be built of materials conforming with the requirements of sections Ind 53.05 and 53.06, or of gypsum block or other approved material.

(3) **TYPE OF MORTAR.** Mortar used in non-load-bearing masonry shall conform to the types specified in Wis. Adm. Code section Ind 53.08 (6).

(4) **MASONRY BOND AND ANCHORAGE.** Exterior and interior non-load-bearing masonry walls shall be bonded longitudinally in each wythe and transversely between wythes as required for bearing walls. See section Ind 53.09 (4) (a) through (b) 2. For stone walls see section Ind 53.09 (8) (e).

(a) **NON-LOAD-BEARING WALLS.** Non-load-bearing walls shall be anchored to each other at intersections and to supporting masonry by means of masonry bond or corrosion-resistant corrugated metal ties or equivalent. Corrugated metal ties shall be not less than $\frac{3}{8}$ inches wide and No. 22 gauge in thickness and shall be located at vertical intervals not more than 16 inches on center or shall be equivalent to the foregoing.

(b) **Anchorage.** Anchorage to steel or concrete supports shall be by means of not less than as specified in par. (a) above or equivalent methods. Anchorage at exterior walls shall be adequate to transmit wind and other lateral loads to the supports.

(c) **Stack bond.** Non-load-bearing walls, or wythes thereof, laid in stack bond or otherwise with inadequate longitudinal bond, shall be tied and reinforced as required in Wis. Adm. Code section 53.09 (4) (c) except that for interior non-load-bearing partitions the maximum spacing of joint reinforcement shall be 24 inches.

(d) **Masonry veneer.** Masonry veneer on wood frame structures shall be securely attached to the backing by corrosion-resistant corrugated metal ties, not less than No. 22 gauge in thickness and $\frac{3}{8}$ inches in width or equivalent. One tie shall be used for at least each 2 square feet of wall area and the distance between ties shall not exceed 24 inches or by No. 13 gauge metal ties or equivalent located 36 inches horizontally and 18 inches vertically.

(5) **HEIGHT AND THICKNESS—INTERIOR NONBEARING MASONRY WALLS.** Walls which are supported by fire-resistive construction and have tight contact with not less than 2-hour fire-resistive construction at the top, shall be not more than 36 times their thickness in clear height. Similar nonbearing walls which contact less than 2-hour fire-resistive support at the top shall be not more than 24 times their thickness in clear height. Plastering shall be included in computing the thickness.

(6) **THICKNESS OF EXTERIOR NONBEARING WALLS.** The thickness of exterior nonbearing walls shall be not less than $\frac{1}{24}$ of the clear height but in no case less than 8 inches. Where 8 inch or 10 inch

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walls are used, the horizontal distance between vertical supports shall be not more than 30 times the wall thickness.

(7) WALLS BELOW GRADE. See Wis. Adm. Code section Ind 53.09 (8) (e).

(8) DESIGN. The minimum thickness of non-load-bearing walls may be decreased and the height or length to thickness ratio may be increased when data is submitted to the department of industry, labor and human relations which justifies a reduction in the requirements specified in this code.

History: 1-2-56; r. and recr. Register, September, 1959, No. 45, eff. 10-1-59; r. and recr. Register, October, 1967, No. 142, eff. 11-1-67; am. (6), Register, December, 1970, No. 180, eff. 1-1-71.

Ind 53.11 Cavity walls. (1) **LOAD-BEARING AND NON-LOAD-BEARING.** Load-bearing and non-load-bearing walls of the cavity type may be built of solid or hollow masonry units or combinations thereof subject to the following requirements as well as other applicable requirements of this code. The description of a cavity wall is determined by its nominal out-to-out dimension. (a) For allowable unit stresses see Wis. Adm. Code section Ind 53.07 for masonry. In computing the unit stresses, the effective cross sectional area of the cavity walls shall be taken as the gross cross sectional area minus the area of the cavity.

(b) For mortar requirements see Wis. Adm. Code section Ind 53.08 (6).

(2) **THICKNESS.** The facing and backing of cavity walls shall each have a thickness of at least 4 inches and the space between the facing and backing shall be not less than 2 inches nor more than 3 inches in width. The backing wythe shall be at least as thick as the facing wythe.

(a) The maximum height between supports shall be 10 feet for 10 inch cavity walls. For other wall thicknesses, it shall not exceed 18 times the sum of the nominal thickness of the inner and outer wythes. The overall height of a 10 inch cavity wall shall not exceed 25 feet. The overall height of all other cavity walls shall not exceed 35 feet.

(3) **BONDING.** The facing and backing of cavity walls shall be bonded with $\frac{1}{4}$ inch diameter metal unit ties or the equivalent or with the equivalent of metal reinforcement having #9 inch longitudinal rods and #9 gauge cross wires. Metal ties shall be of corrosion-resistant metal or coated with a corrosion-resistant metal, or other approved protective coating.

(a) *Metal ties.* There shall be one $\frac{1}{4}$ inch steel rod or metal tie of equivalent strength or stiffness for not more than each $4\frac{1}{2}$ square feet of wall area. Ties in alternate courses shall be staggered, the maximum vertical distance between ties shall not exceed 18 inches, and the maximum horizontal distance shall not exceed 36 inches. Ties bent to rectangular shape shall be used with hollow masonry units laid with the cells vertical; in other walls the ends of ties shall be bent to 90-degree angles, Z shaped, to provide hooks not less than 2 inches long. Additional bonding ties shall be provided at

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- (10) STRUCTURAL GLUED LAMINATED LUMBER.
 (a) The term "structural glued laminated lumber" as used herein refers only to those glued laminated structural members in which the grain of all laminations of a member is approximately parallel.
 (b) The following allowable unit stresses shall be used in design of structural glued laminated members.

ALLOWABLE UNIT STRESSES FOR STRUCTURAL GLUED LAMINATED LUMBER

Species and Combinations of Lumber Grades			Allowable Unit Stresses in Pounds Per Square Inch							
Outer Laminations		Inner Laminations	Extreme Fibre in Bending "f"		Tension Parallel to Grain "t"		Compression Parallel to Grain "c"		Horizontal Shear "H"	Compression perpendicular to Grain "c"
Grade	Number Each Side	Grade	Laminations		Laminations		Laminations			
			4 to 14	15 or more	4 to 14	15 or more	4 to 14	15 or more		
DOUGLAS FIR, COAST REGION										
Select Structural	1/5 of total	Construction	2,600	2,600	2,400	2,600	2,000	2,000	165	415
Dense Construction	All	Dense Construction	2,400	2,600	2,600	2,600	2,200	2,300	165	455
Dense Construction	1/14 of total	Construction	2,400	2,600	2,200	2,400	1,900	2,000	165	455
Select Structural	One	Construction	2,200	2,600	2,400	2,600	1,800	2,000	165	415
Select Structural	1/5 of total	Standard	2,200	2,200	2,000	2,400	1,800	2,000	165	390
Select Structural	One	Standard	2,000	2,200	2,200	2,400	1,900	2,000	165	390
Construction	All	Construction	2,600	2,200	2,000	2,400	1,800	1,900	165	390
Standard	All	Standard	1,600	2,000	2,000	2,400	1,800	1,900	165	390
PINE, SOUTHERN										
No. 1	All	No. 1	2,600	2,600	2,600	2,600	2,100	2,100	200	385
B & B Dense	1/14 of total	No. 2	2,100	2,600	2,600	2,600	2,000	2,000	200	450
B & B	One	No. 2	2,100	2,400	2,600	2,600	2,000	2,000	200	385
No. 1	1/5 of total	No. 2	2,400	2,600	2,400	2,600	2,000	2,000	200	450
No. 2 Dense	All	No. 2 Dense	2,000	2,600	2,600	2,600	2,000	2,000	200	450
No. 2 Dense	1/14 of total	No. 2	2,000	2,600	2,200	2,600	1,900	2,000	200	450
No. 2	All	No. 2	1,600	2,200	2,200	2,600	1,900	2,000	200	385

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The Modulus of Elasticity (E) is 1,800,000 pounds per square inch for dry conditions of use.
 Allowable stresses are for normal conditions of load and dry conditions of use.

History: 1-2-56; am. (9); (9) (a); (9) (b); (9) (c). Register, June, 1956, No. 6, eff. 7-1-56; r. (2) and recr. (2); and cr. (10). Register, August, 1957, No. 20, eff. 9-1-57; r. and recr. (9). Register, September, 1959, No. 45, eff. 10-1-59; renum. from Ind 53.28 to be Ind 53.20, Register, October, 1967, No. 142, eff. 11-1-67.

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Ind 53.21 History: 1-2-56; r. Register, October, 1967, No. 142, eff. 11-1-67.

Ind 53.22 History: 1-2-56; cr. (5), Register, September, 1959, No. 45, eff. 10-1-59; r. Register, October, 1967, No. 142, eff. 11-1-67.

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Ind 22.03 Number of closets and urinals. (1) In every place of employment, whether heretofore or hereafter constructed, one water-closet shall be provided for every 20 persons, or fraction thereof, of either sex.

(2) In addition thereto, where more than 10 males are employed, one urinal shall be provided for every 40 males, or fraction thereof. Where not more than 10 males are employed, either a urinal shall be provided or the water-closet shall have an elongated bowl and self-rising seat.

(3) The requirements in subsections (1) and (2) shall be computed on the basis of the maximum number of employes on any one shift.

(4) In all new installations, only individual urinals shall be used. Such individual urinals shall be of porcelain, vitreous china, or stainless steel, set into the floor, the floor graded to the urinal, and shall be equipped with an effective automatic tank or valve or a satisfactory foot operating flushing device.

(5) All water-closets hereafter installed shall be of the individual type having elongated bowls and open front seats.

Ind 22.13 Lavatories; location. Washing facilities shall be provided in or adjacent to every toilet room. In new installations, there shall be at least one lavatory for every 5 fixtures (closets and urinals), or fraction.

Cross reference—See section Ind 22.14 for additional requirements for places of employment.

See section Ind 22.14 on material from which lavatories shall be made and for allowable types of installations.

Note: One lavatory for every 2 or 3 fixtures is recommended.

Ind 22.14 Washing facilities for places of industrial employment. (1) LAVATORIES. (a) There shall be at least one lavatory supplied with hot and cold water provided for every 10 employes or fraction in the following places of employment:

1. In all places of employment where lead, arsenic or other poisonous or injurious materials are handled by the employes.

2. In all places of employment where food is prepared or manufactured.

3. In all other places of employment where the employes' hands become dirty or greasy.

(b) Wash rooms shall be constructed according to the requirements for toilet rooms.

(c) Twenty inches of trough wash sink, or of the edge of a circular wash fountain shall be considered the equivalent of one lavatory. The trough wash sink or circular wash fountain shall not be equipped with a plug or other stopper. Each lavatory and each 20 inches of trough wash sink shall be equipped with either a faucet or spray pipe, so connected as to supply water of the desired temperature.

(d) All lavatories shall be made of porcelain, enameled iron, or other similar impervious material.

(2) SHOWERS. Shower facilities shall be provided in accordance with the following requirements:

(a) In places of employment where poisonous or irritating materials which penetrate the clothing are handled at least one shower shall be provided for every 10 employes or fraction who handle or come in contact with such materials.

(b) In glue factories, tanneries, foundries, mines, and other places of employment where materials which penetrate the clothing are handled at least one shower for every 20 such employes, or fraction, shall be provided.

(c) Showers shall be provided with hot and cold water and be equipped with a hot and cold regulating valve. The regulating device or valve shall be plainly marked and shall be so located that the valve can be operated without standing under the shower. Supply or feed pipes to showers shall be placed overhead or protected to avoid the possibility of a person coming in contact with the hot water pipes.

(d) Each shower room or compartment shall be constructed of material impervious to moisture, and the floor under each shower head shall be of such construction, or be provided with a suitable sanitary device, so as to prevent slipping.

(3) SOAP. For all hand washing facilities in places of employment, an adequate quantity of bland, non-irritating, non-abrasive soap which shall effectively cleanse the skin shall be provided.

Ind 22.15 Towels. In all places of employment, the use of towels in common is prohibited. Where hand washing facilities are required, individual cloth towels, magazine type roll cloth towels, or paper towels shall be furnished by the employer. Electric hand dryers may be used if approved by the industrial commission.

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Ind 22.17 Drinking water. (1) Every place of employment shall be supplied with sufficient pure drinking water and the faucets or outlets for the same shall be placed convenient to the employes, but not in toilet rooms. Common drinking cups are prohibited. Sanitary drinking fountains shall be installed or individual cups shall be provided by the employers.

Cross reference—See the state plumbing code for required construction of sanitary drinking fountains.

(2) Where running water is not available, a covered drinking water container equipped with a faucet or bubbler shall be provided. The container shall be cleaned and sterilized at frequent intervals and kept in a sanitary condition and in good repair.

Ind 22.18 Rest rooms. (1) A rest room shall be provided at the principal place of business (owned, leased, or rented), where 5 or more persons are employed.

(2) Rest rooms shall be furnished with a cot or couch, and shall be lighted, heated and ventilated in accordance with the applicable standards published in Wisconsin administrative codes.

(3) A toilet room shall not, under this rule, be construed to be nor may it serve as a rest room. A first aid room may serve as a rest room.

History: 1-2-56; r. and recr. Register, August, 1967, No. 140, eff. 9-1-67.

Ind 54.13 Isolation of hazards. (1) All heating boilers and furnaces, power boilers, fuel rooms, storage vaults for paints, oils, and similar combustibles and other similar hazards in a building shall be isolated from the rest of the building by at least a 2-hour fire-resistive enclosure as specified in sections Ind 51.05 and Ind 51.06; except that in buildings not more than 2 stories in height and having a floor area of not more than 3000 square feet per floor, a one-hour fire-resistive enclosure as specified in sections Ind 51.05 and Ind 51.06, or better, shall be provided.

(2) All openings shall be protected with self-closing fire-resistive doors as specified in section Ind 51.09.

(3) Space heaters, suspended furnaces, and direct-fired unit heaters, fired with various fuels, may be used without an enclosure where approved by the department of industry, labor and human relations. Where suspended furnaces and direct fired unit heaters are used without an enclosure, all such units shall be located at least 7 feet above the floor.

Ind 54.14 Standpipes and fire extinguishers. (1) For exterior standpipes see section Ind 51.21.

(2) Standard interior first aid standpipes, as specified in section Ind 51.21 shall be provided in all buildings of more than 2 stories and more than 3000 square feet undivided floor area, where flammable material or any other hazardous condition is present, unless an approved automatic sprinkler system is provided.

(3) Wherever water supply of sufficient pressure is not available, 2 standard fire extinguishers as specified in section Ind 51.22 shall be provided on each floor in place of each required interior standpipe.

Ind 54.15 Automatic sprinklers. (1) A complete automatic sprinkler system, as specified in section Ind 51.23, shall be provided in every building of this classification where more than 50 persons are employed or accommodated above the third story except as provided below:

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(a) Office buildings.

(b) In 3 story buildings other than office buildings with more than 50 persons on the third floor, only basements and sub-basements must be sprinklered.

(c) An office building in which one or more floors are used for mercantile purposes, only the mercantile portion must be sprinklered.

(d) Buildings of fire-resistive construction whose contents are not readily combustible.

History: 1-3-56; r. and rec., Register, December, 1970, No. 180, eff. 1-1-71.

Ind 54.16 Fire alarm. A fire alarm system complying with section Ind 51.24 shall be provided in every factory or workshop where more than 10 persons are employed above the second story except buildings which are provided with a complete automatic sprinkler system and except fire-resistive buildings whose contents are practically incombustible.

Ind 54.17 Floor load signs. (1) In every factory, workshop, warehouse, or other building where material is piled, notices of a permanent character shall be painted or otherwise prominently displayed, stating the live load in pounds per square foot which the floor is designed to carry. Such notices shall be placed in full view, on each floor.

(2) Where floors are always used for the storage of some particular material, the walls shall be marked to the height to which the material shall be piled without exceeding the safe load.

Ind 54.18 Signs indicating number of persons. In all buildings of this classification where 50 or more persons are accommodated on any floor above the second, notices shall be prominently displayed stating the maximum number of persons on each floor for whom stairways and other exits have been provided according to sections Ind 54.02-Ind 54.06. Such notices shall be placed in full view, on each floor.

Ind 54.19 No smoking signs. Smoking shall not be permitted in retail establishments where flammable materials are handled or sold. Suitable signs bearing the words "No Smoking" shall be erected in all places where such hazard exists.

Ind 54.20 Tents. All tents used for sales or storage purposes shall conform to the requirements specified for tents in sections Ind 55.58-Ind 55.63, inclusive, of this code.

History: Cr. Register, September, 1959, No. 45, eff. 10-1-59.

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Chapter Ind 57

APARTMENT BUILDINGS, HOTELS AND PLACES
OF DETENTION

Ind 57.001	Scope	Ind 57.15	Repairs
Ind 57.01	Class of construction	Ind 57.16	Cleanliness
Ind 57.02	First floor fire-resistive	Ind 57.17	Size of rooms
Ind 57.03	Garage and business separation	Ind 57.18	Basement rooms
Ind 57.04	Corridor and dividing partitions	Ind 57.19	Windows
Ind 57.05	Court walls	Ind 57.20	Isolation of fire hazards
Ind 57.06	Yards	Ind 57.21	Fire protection equipment
Ind 57.07	Number, location and type of exits	Ind 57.22	Fire alarms
Ind 57.08	Aggregate width of exits	Ind 57.23	Scuttle
Ind 57.09	Exit doors	Ind 57.24	Directions for escape
Ind 57.10	Passageways	Ind 57.25	Row house
Ind 57.11	Lighting of exits	Ind 57.50	Garages
Ind 57.12	Enclosure of stairways and shafts	Ind 57.51	Filling stations; buildings and structures
Ind 57.13	Toilet rooms	Ind 57.52	Automobile tire or battery shops
Ind 57.14	Washing facilities	Ind 57.53	Automobile parking decks

Ind 57.001 **Scope.** (1) The requirements of this chapter shall apply to all apartment buildings, row houses, rooming houses, hotels, dormitories, convents, monasteries, hospitals, children's homes, homes for the aged and infirm, nursing homes, convalescent hospitals, convalescent homes, asylums, mental hospitals, jails, and other places of abode or detention, except as provided in section Ind 57.25 (2).

(2) By *place of abode* is meant a building or part of a building, such as apartment building, row house, rooming house, hotel, dormitory, convent, hospital, 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.

(3) By *place of detention* is meant a building or part of a building used as a place of abode and wherein persons are forcibly confined, such as asylums, mental hospitals, and jails.

Note 1: The attorney general has ruled that all persons committed to an insane asylum by court order come within the meaning of the words "forcibly confined". Also that the words "forcibly confined" apply to all persons confined without their consent.

Note 2: For requirements regarding migrant labor camps see Wis. Adm. Code chapter Ind 49.

Ind 57.005 **History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67; r. Register, December, 1970, No. 180, eff. 1-1-71.

Ind 57.01 **Class of construction.** (1) All places of abode which are more than 3 stories in height shall be of fire-resistive construction as specified in section Ind 51.001.

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(2) All 3-story places of abode, other than hospitals and places of detention, shall be at least of ordinary construction as specified in section Ind 51.02, except that a 3-story apartment building which will accommodate not more than one family on each floor and a 3-story hotel or rooming house which will accommodate not more than 6 persons on each floor may be of frame construction as specified in section Ind 51.03, except as provided in section Ind 57.02.

(3) All places of detention shall be of fire-resistive construction throughout as specified in section Ind 51.001. All hospitals, convalescent hospitals, and nursing homes 3 or more stories in height shall be of fire-resistive construction as specified in section Ind 51.001.

History: 1-2-56; am. (3), Register, September, 1959, No. 45, eff. 10-1-59.

Ind 57.02 First floor fire-resistive. (1) In 3 story buildings, except those having not more than one family on each floor, the first floor and its supports shall be of not less than 3-hour fire-resistive construction as specified in section Ind 51.06, except that in a 3 story apartment house which will accommodate not more than 4 families, or a 3 story hotel or rooming house which will accommodate not more than 30 persons, above the first story, the basement ceiling shall be of not less than one-hour fire-resistive construction as specified in section Ind 51.06 or shall be protected by automatic sprinklers as specified in section Ind 51.23.

(2) Spaces between floor joists, below or above stud partitions where the studs extend through one or more stories, shall be fire-stopped.

Ind 57.03 Garage and business separation. (1) In every building in which a lower story is used for garage purposes, the ceiling over the garage shall be of unpierced 4-hour fire-resistive construction as specified in section Ind 51.06. Stairways from garages leading to the upper stories shall be separated from the garage area with walls of 4-hour fire-resistive construction as specified in section Ind 51.06, with openings protected as specified for special occupancy separation, section Ind 51.08.

(2) In a building more than 2 stories in height where the lower story is used for business purposes, other than the hazards listed in Chapter Ind 57 of this code, the ceiling over the lower story shall be of not less than one-hour fire-resistive construction as specified in section Ind 51.06.

Ind 57.04 Corridor and dividing partitions. (1) All 3 story places of abode which have more than one apartment or 8 rooms on any floor, shall have the public passageways enclosed with partitions of not less than one-hour fire-resistive construction as specified in section Ind 51.05. If there is more than one apartment on any floor, such apartments shall be separated by such partitions. If there are more than 8 rooms on any floor, they shall be divided by such partitions into groups of not more than 8 rooms each.

(2) Doors in such corridor partitions may be solid slab doors, 1 3/4 inches in thickness, and need not be self-closing.

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Ind 57.05 Court walls. The walls of courts and similar interior shafts for light and air shall be of not less than 3-hour fire-resistive construction as specified in section Ind 51.05, except that when the building is permitted to be of ordinary construction, the court walls may be of one-hour fire-resistive construction.

Ind 57.06 Yards. (1) Behind every apartment house, the rear of which does not abut on an alley or street, there shall be a yard across the entire width of the lot, open and unobstructed from the ground to the sky. The width of the yard behind a 2 story building shall be either:

- (a) At least 5 feet of unobstructed width; or
 - (b) At least 10 feet from the rear lot line to the building line, of which at least 3 feet shall be unobstructed, and the remainder may be occupied by an open (or screened) porch.
- (2) For apartment houses of more than 2 stories, the unobstructed width of the entire yard shall be increased one foot for each additional story, except in the case of corner lots.
- (3) No apartment house shall be placed behind any other building unless there is at least 50 feet between the buildings.

Ind 57.07 Number, location and type of exits. (1) There shall be at least 2 exits accessible from each room or apartment by means of stairways, ramps or horizontal exits. The number and location of such exits shall be such that in case any exit or passageway is blocked at any point, some other exit will still be accessible through public passageways from every room or apartment.

- (a) In fire-resistive buildings a total area of not more than 1,200 square feet may be placed between an exit and the end of the building.
- (2) Exits shall be distributed so that the entrance to each room or apartment will be not more than 50 feet distant from an exit, measuring along public passageways, if in a building of non-fire-resistive construction, or 75 feet in a fire-resistive building.

(3) At least one-half of the required exits, in buildings of more than one story, shall be stairways as specified in section Ind 51.16. The remaining exits shall be either stairways, or horizontal exits; or fire escapes may be used as exits from floors which are not more than 40 feet above grade if they are placed against blank walls. Every building which accommodates more than one family, or 8 persons, above the second story shall have at least 2 stairways.

(4) Apartment buildings 3 stories or less in height whose floors and supporting members are of not less than 2-hour fire-resistive construction, as specified in section Ind 51.06, and which have a plan so arranged that not more than 2 occupancies on any floor make use of a common stairway, may be constructed with one common stairway as a single exit, provided the walls between occupancies and those

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enclosing the stairway are of 2-hour fire-resistive construction as specified in section Ind 51.05. In this case, the stairways must be of not less than 2-hour fire-resistive construction, must lead directly to the outside and have all interior openings protected by approved fire-resistive doors as specified in section Ind 51.09.

(5) Where a jail or other place of detention wherein persons are forcibly confined is located on the upper floors of a court house or office building, at least one of the exits from the jail shall be a separate smokeproof stair tower leading directly from the jail section to the outside at street grade. This stairway shall serve only the jail area and there shall be no doors opening into it from the office or court house section of the building.

History: 1-2-56; r. and rec. (1), Register, December, 1970, No. 180, eff. 1-1-71.

Ind 57.08 Aggregate width of exits. The aggregate width of exits shall be as provided for in section Ind 54.04.

Ind 57.09 Exit doors. Exit doors shall be as specified in section Ind 51.15; except that a door which is used by not more than 6 families, or 40 persons, shall be not less than 3 feet wide and shall not be required to open outward.

Ind 57.10 Passageways. Every public passageway leading from an exit shall be at least as wide as the required width of such exit. Every public passageway leading to an exit shall be at least 3 feet wide. The required width shall be kept clear and unobstructed at all times.

Ind 57.11 Lighting of exits. In every building which accommodates more than 4 families, or 30 persons, and in every building which accommodates transients, the public passageways and stairways and exit doors shall be illuminated from one hour after sunset to one hour before sunrise. This illumination shall include lights at all intersections of passageways, at all exits, and at the head, foot and landing of every stairway. The lights at emergency exit doors shall be red lights and shall be accompanied by a sign bearing the word "EXIT" or "OUT", in plain letters.

Ind 57.12 Enclosure of stairways and shafts. (1) In 3 story buildings all stairways shall be enclosed as provided in sections Ind 51.17 or 51.18, with one-hour fire-resistive partitions, as specified in section Ind 51.05, or better, unless the building is either of fire-resistive construction or equipped throughout with automatic sprinklers. The doors may be omitted in the stories above the basement in one stairway enclosure. In all 3 story buildings accommodating more than 2 families, or 15 persons, above the first story, all basement stairways shall be enclosed with 2-hour fire-resistive partitions as specified in section Ind 51.05.

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(2) In buildings more than 3 stories in height, all stairways shall be enclosed with 2-hour fire-resistive partitions, as specified in section Ind 51.05, except that one stairway may be unenclosed in the first and second stories, provided such stairway does not lead to the basement.

(3) In all buildings more than 2 stories in height in which the first story is used for business purposes, at least one stairway shall be enclosed in the first story with an unpierced wall of 2-hour fire-resistive construction, as specified in section Ind 51.05, and such stairway shall not connect with the basement.

(4) Every elevator shaftway, dumbwaiter shaftway, clothes chute, waste paper chute, pipe shafts and other similar vertical shafts in buildings more than 2 stories in height shall be enclosed with 2-hour fire-resistive partitions, as described in section Ind 51.05, except that for 3 story buildings, one-hour fire resistive partitions may be used where the enclosure does not pass through a business portion. In all cases the basement enclosure shall be of not less than 4-hour fire-resistive construction.

Ind 57.13 Toilet rooms. (1) Every building within this occupancy classification shall be provided with toilet rooms meeting the requirements of this section and the requirements for general sanitation, section Ind 52.50 through 52.64.

(a) Each living unit of an apartment or row house building shall be provided with a toilet room having a water closet, lavatory and bathing facilities.

(2) Every building within this occupancy classification, except apartment buildings, shall have at least one water closet for every 10 persons or fraction thereof.

(a) Occupants of rooms with private water closets shall not be considered in counting either the number of persons or the number of fixtures.

Note: For general toilet room requirements, see sections Ind 52.50 to Ind 52.64, inclusive.

History: 1-2-56; am. (1), (2) and (3), Register, June, 1956, No. 6, eff. 7-1-56; cr. (4), Register, July, 1967, No. 139, eff. 8-1-67; r. and recr., Register, December, 1970, No. 180, eff. 1-1-71.

Ind 57.14 Washing facilities. Every building within this occupancy classification where water supply is available or can be made available. There shall be at least one sink or wash bowl in connection with each toilet fixture.

History: 1-2-56; r. and recr., Register, December, 1970, No. 180, eff. 1-1-71.

Ind 57.15 Repairs. Every building of this classification, and all parts thereof, shall be kept in good repair and the roof shall be maintained to prevent leakage. All rainwater shall be so drained and conveyed therefrom to prevent dampness in the walls and ceilings.

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Ind 57.16 Cleanliness. Every building shall be kept clean, and shall also be kept free from any accumulation of dirt, filth, rubbish, garbage, or other matter in or on the same or in the yards, courts, passages, areas or alleys connected with or belonging to the same.

Ind 57.17 Size of rooms. (1) Every sleeping room shall be of sufficient size to afford at least 400 cubic feet of air space for each occupant over 12 years of age, and 200 cubic feet for each occupant under 12 years, except that a minimum of 150 cubic feet may be provided for infants in hospital nurseries. No greater number of occupants than the number thus established, shall be permitted in any such rooms.

History: 1-2-56; r. and recr. Register, June, 1967, No. 138, eff. 7-1-67; r. and recr. (2), Register, July, 1967, No. 139, eff. 8-1-67; r. (2), Register, December, 1970, No. 180, eff. 1-1-71.

Ind 57.18 Basement rooms. (1) No living or sleeping room shall have its floor level below the adjoining yard, court, alley or street grade.

(2) No rooms wherein persons are forcibly confined shall be located in a basement.

Ind 57.19 Windows. (1) The outside windows in every sleeping or living room shall have a total sash area of at least 1/10th of the floor area of the room but not less than 12 square feet. The openable area of such windows shall be equal to not less than 5% of the floor area of the room served.

History: 1-2-56; r. and recr. Register, September, 1959, No. 45, eff. 10-1-59; r. and recr. Register, June, 1967, No. 138, eff. 7-1-67; r. and recr. (2), Register, July, 1967, No. 139, eff. 8-1-67; r. (2), Register, December, 1970, No. 180, eff. 1-1-71.

Ind 57.20 Isolation of fire hazards. (1) All boiler and furnace rooms, including fuel rooms and breeching, all laundries, drying rooms, carpenter shops, paint shops, and other hazardous work rooms and storage rooms in hospitals and buildings accommodating transients which are more than 3 stories in height and in all asylums and other places of detention shall be enclosed with a 4-hour fire-resistive enclosure as specified in sections Ind 51.05 and 51.06. All openings shall be protected by self-closing fire-resistive doors as specified in section Ind 51.09.

(2) In all other buildings under this classification, such rooms shall be enclosed with a 2-hour fire-resistive enclosure as provided in sections Ind 51.05 and 51.06, or better, except as otherwise provided in this section.

(3) In apartment buildings not more than 2 stories in height, such rooms shall be enclosed with a one-hour fire-resistive enclosure as specified in section Ind 51.05 and 51.06, or better, except as provided in subsection (5).

(4) In one-story buildings having a floor area of not more than 3,000 square feet and 2-story buildings having a floor area of not more than 1,500 square feet per floor which are used for business purposes

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(17) An "occupied area" is any room, area or enclosure used by one or more persons.

(18) "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. Natural ventilation is permitted through window openings arranged in conformance with Wis. Adm. Code section Ind 52.02.

(19) An "outlet" or supply opening is an opening, the sole purpose of which is to deliver air into any space to provide heating, ventilation or air conditioning.

(20) A "return" or exhaust opening is any opening the sole purpose of which is to remove air from any space being heated, ventilated or air conditioned.

(21) A (gravity or circulating type) "space heater" is a vented, self-contained free standing or wall recessed heating appliance using liquid or gas fuels.

Note: See definition for "jacketed stove"

(22) "Tempered outside air". Outside air heated before distribution.

(23) "Tempered air". Air transferred from heated area of building.

(24) A "unit heater". (Direct-fired low and high static type).
(a) Low static type is 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.

(b) High static pressure type is 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.

(25) "Ventilation" is the process of supplying or removing air by natural or mechanical means, to or from any space.

History: Cr. Register, January, 1965, No. 109, eff. 2-1-65.

Ind 59.20 Drawings, specifications and data. (1) Design and Preparation of Drawings. All drawings and data for the installation of heating, ventilating and air conditioning equipment shall be designed and prepared to satisfy the requirements of this code.

(2) All drawings and design data to be submitted for review and approval under the provisions of this code for buildings greater than 50,000 cubic feet shall be sealed or stamped by an engineer, architect, or designer registered in accordance with the laws of Wisconsin.

Note: Laws regulating the practice of engineering and architecture are found in chapter 443, Wis. Stats.

Editor's note: The department of industry, labor and human relations filed an amendment of section Ind 59.20 in which they quoted only subsections (1) and (2) intro. par. Apparently they did not intend to affect the following material and we have therefore continued to print it:

(a) Drawings for installations within the city limits of Milwaukee shall be submitted to the Inspector of Buildings, Milwaukee for examination and approval.

(b) The replacement of major apparatus is subject to department of industry, labor and human relations approval.

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(c) A statement in triplicate, showing capacities of old and new equipment may be submitted instead of data required in subsection (7).

(3) NUMBER OF DRAWINGS AND SPECIFICATIONS. One copy of specifications and 3 complete sets of drawings shall be submitted for approval.

Note: Extra copies of drawings may be filed for an approval and shall be submitted with the original submittal.

(4) APPROVAL OF CHANGES ON DRAWINGS. When it is necessary to change approved heating and ventilating drawings or specifications, revised drawings shall be approved before installation is commenced.

(5) APPROVED DRAWINGS KEPT AT BUILDING. A complete set of approved drawings shall be kept available at the job site.

(6) INFORMATION REQUIRED ON DRAWINGS AND IN SPECIFICATIONS. The lines, data and information shown on drawings for heating, ventilating and air conditioning systems submitted for approval shall be permanent, clear, legible and complete, and shall include all details and data necessary for review of the proposed installation, such as:

- (a) Name of the owner of the building.
- (b) Complete address of the building.
- (c) Architect, engineer or designer's name shall appear on the title sheet.
- (d) A floor plan for each floor where equipment is installed shall be furnished as part of the set of drawings.
- (e) A room schedule, indicating the intended use of all rooms.
- (f) Description of the construction for walls, floor, ceiling, and roof.
- (g) Elevation and sectional plans to illustrate and clarify equipment arrangements.
- (h) Location, size and type of all principal units of equipment.
- (i) Size and continuity of all ducts and vents.
- (j) Description and location of chimney.
- (k) Specifications shall be properly identified with and completely supplement the drawings.

(7) DATA REQUIRED. All drawings submitted for approval shall be accompanied by sufficient data and information for the department of industry, labor and human relations to judge if the capacity of the equipment and the performance of the system will meet the requirements of this code. The following data shall be submitted:

- (a) Heat loss calculated in BTU per hour.
- (b) Calculated air volume at design temperature for each occupied area.
- (c) Calculated direct and indirect radiation required for each occupied area.
- (d) Calculations for ventilation requirements.
- (e) Summation of total heating and ventilation requirements.

Note: Cross reference: The department of industry, labor and human relations will accept the method and standards recommended by the Mechanical Contractors' Association of America, American Society of Heating, Refrigeration and Air Conditioning Engineers, National Warm Air Heating and Air Conditioning Association and Institute of Boiler and Radiator Manufacturers as the basis for calculations and design data.

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(8) **FUNDAMENTAL DATA REQUIRED.** When requested, additional data pertaining to design and operation of a heating and ventilating system shall be filed for approval with the department of industry, labor and human relations by the architect, engineer, designer or manufacturer before such equipment is installed or used.

(9) **APPROVAL OF MATERIAL AND EQUIPMENT.** The use of materials, equipment, devices and methods of installation not mentioned in this code is subject to approval in writing by the department of industry, labor and human relations. Sufficient test data and descriptive information shall be submitted to prove its use.

History: Cr. Register, January, 1965, No. 109, eff. 2-1-65; am. (1), Register, May, 1966, No. 125, eff. 6-1-66; am. (1), Register, October, 1967, No. 142, eff. 11-1-67; r. and recr. (1), Register, June, 1968, No. 150, eff. 7-1-68; am. (1) and (2) intro. par., Register, December, 1970, No. 180, eff. 1-1-71.

Ind 59.21 Accident prevention and fire protection. (1) GUARDS. All mechanical apparatus shall be guarded to comply with Wis. Adm. Code, chapter Ind 1.

(2) **FIRE PROTECTION.** All installations under this code shall comply with the precautionary requirements of the department of industry, labor and human relations to reduce fire hazards.

Note: Refer to the building code and electrical code for additional safety and fire protection requirements:

- Masonry chimneys, construction...Wis. Adm. Code section Ind 52.10
- Metal smoke stacks, construction...Wis. Adm. Code section Ind 52.11
- Smoke pipes.....Wis. Adm. Code section Ind 52.12
- Steam and hot water pipes,
protection.....Wis. Adm. Code section Ind 52.13
- Vertical duct shaft, construction...Wis. Adm. Code section Ind 52.14
- Boiler and furnace rooms.....Wis. Adm. Code sections Ind 54.13,
Ind 55.29, 56.15, 57.20, 57.50
- Heating and ventilating equipment and
wiring.....Wis. Adm. Code section E 1-E 900

Ind 59.22 Design. (1) INSTALLATION OF EQUIPMENT. All heating, ventilating and air conditioning installations shall be designed and installed to provide the service and results required by this code.

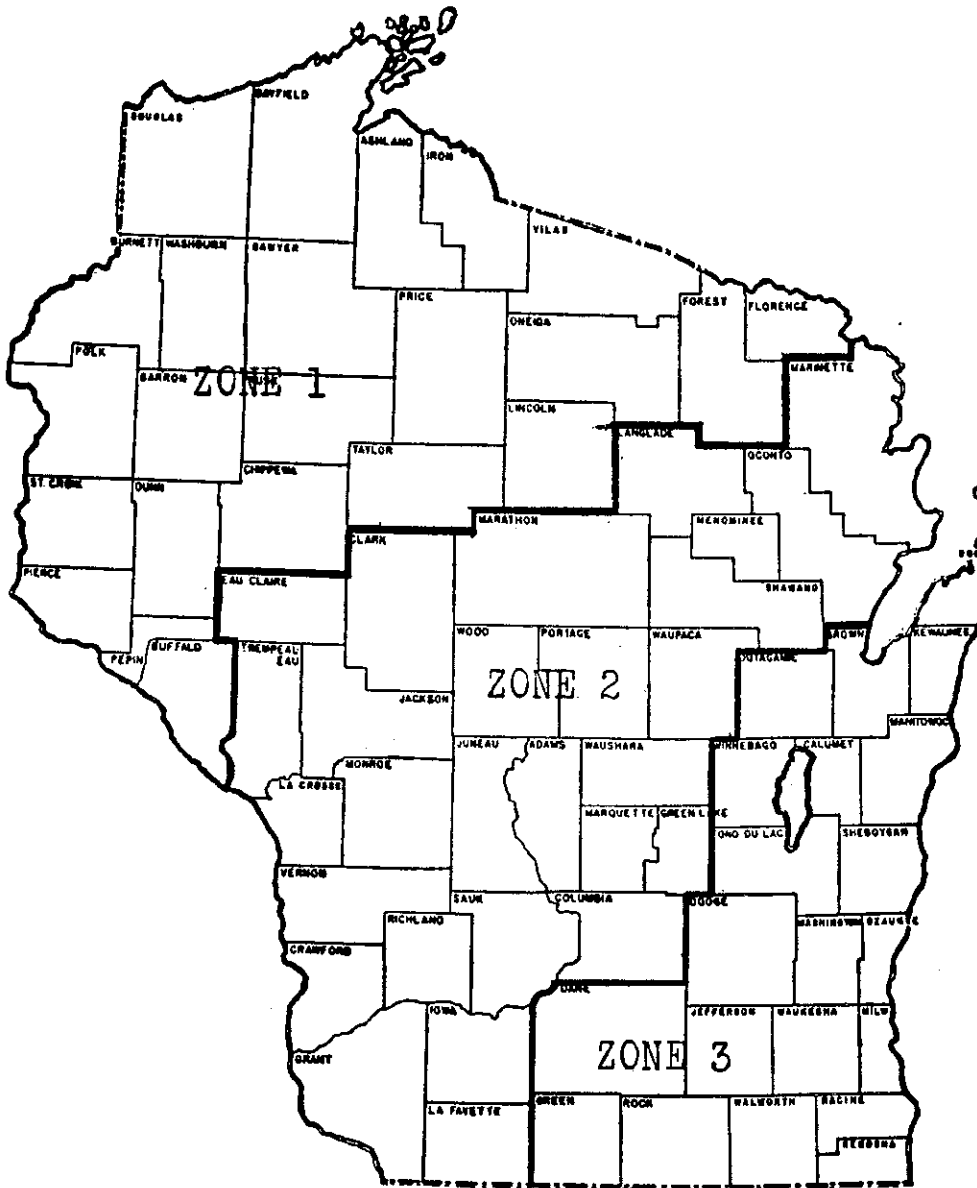
Note: Compliance with this code shall not constitute assurance of proper installation or operation of the heating, ventilating and air conditioning system. This code is not to be used as a design manual but it is established as a minimum standard for safety, health and general welfare of the public.

(2) **CAPACITY AND ARRANGEMENT.** The calculated capacity and the arrangement of all installations for required heating and ventilating shall be based upon simultaneous service to all parts of the building, unless otherwise provided in this code.

(3) **OUTSIDE TEMPERATURE DESIGN CONDITIONS.** In the accompanying map, the state of Wisconsin has been divided into 3 zones. The maximum heat losses for a heating system shall be calculated on the basis of the temperatures indicated in Table 1 with reference to location of the project in each respective zone.

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TABLE 1
 MAP OF WISCONSIN SHOWING DESIGN TEMPERATURE ZONES



Zone 1 - - - - - 30° Below Zero F.
 Zone 2 - - - - - 25° Below Zero F.
 Zone 3 - - - - - 15° Below Zero F.

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