

## Chapter Ind 161

## FACTORIES, OFFICE AND MERCANTILE BUILDINGS

|             |                          |            |                              |
|-------------|--------------------------|------------|------------------------------|
| Ind 161.001 | Scope                    | Ind 161.08 | Lighting                     |
| Ind 161.01  | Exits                    | Ind 161.09 | Standpipes and extinguishers |
| Ind 161.02  | Fire escapes             | Ind 161.10 | Automatic sprinklers         |
| Ind 161.03  | Stairways                | Ind 161.11 | Fire alarm                   |
| Ind 161.04  | Total width of stairways | Ind 161.12 | Floor loads                  |
| Ind 161.05  | Capacity of buildings    | Ind 161.13 | Heating plants               |
| Ind 161.06  | Exit doors               |            |                              |
| Ind 161.07  | Passageways              |            |                              |

The requirements of the following sections apply to buildings of this classification only. For other general requirements, see Ch. Ind 160.

**Ind 161.001. Scope.** Under this classification are included all factories and workshops (including all places where manual labor is employed), office buildings, telegraph and telephone offices, mercantile establishments where commodities are bought or sold, taverns, warehouses, railroad stations, exhibition buildings, and places where not more than 100 persons assemble for recreation, entertainment, worship or dining purposes.

**History:** 1-2-56; renum., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.01 Exits.** (1) **MINIMUM NUMBER.** Every building and every story thereof in this classification shall have at least 2 exits. In large buildings, or where a large number of persons are employed, or where there is an especially hazardous condition, additional exits shall be provided as directed, so as to afford safe egress for all the occupants.

(2) **TYPE.** The exits herein required shall be either stairways or fire escapes or horizontal exits (see section Ind 160.12). But in every non-fire-resistive building more than 2 stories in height, at least one exit shall be a fire escape or a horizontal exit, unless the building is equipped throughout with an approved automatic sprinkler system, or unless there are at least 2 stairways enclosed with not less than one-hour-fire-resistive partitions and fire-resistive doors. (Sections Ind 160.08-160.09)

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.02 Fire escapes.** Fire escapes shall be stairway fire escapes as described in sections Ind 160.13-160.23. On buildings which accommodate more than 50 persons above the second story, such fire escape shall be a "B" type fire escape. Existing stairway fire escapes will be accepted if strongly and properly built and in good condition. Fire ladders will not be accepted as exits.

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

Ind 161.03 Stairways. (1) Every stairway in buildings more than 3 stories in height shall be enclosed with not less than one-hour fire-resistive partitions and fire-resistive doors. (Sections Ind 160.08-160.09)

(1m) Exception. Monumental stairs leading from the street floor to the second floor or to a basement used for commercial purposes need not be enclosed provided they are effectively cut off at the second floor and basement by fire-resistive partitions, as specified above.

(2) Outside stairways heretofore constructed on buildings not more than 2 stories in height will be accepted if properly constructed and in good condition.

(3) Existing inside stairways at a steeper angle than 45 degrees with the horizontal, or less than 3 feet in width, will not be accepted as exits.

(4) All stairways and steps of more than 3 risers shall have at least one handrail. Stairways and steps which are 5 feet or more in width, or which are open on both sides, shall have a handrail on each side. Rails shall be not less than 2 feet 6 inches vertically above nose of treads or 3 feet above platform.

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

Ind 161.04 Total width of stairways. (1) In a building not provided with horizontal exits, the total width of stairways (if enclosed) and stairway fire escapes shall not be less than the following:

(2) In ordinary or frame buildings:

Sprinklered ----- 40 in. per 100 persons  
Not Sprinklered ----- 60 in. per 100 persons

In fire-resistive or mill buildings:

|           | Fire-Resistive Sprinklered                         | Fire-Resistive Not Sprinklered | Mill Sprinklered | Mill Not Sprinklered |                        |
|-----------|--|--------------------------------|------------------|----------------------|------------------------|
| -----     | 30   | 50                             | 40               | 60                   | in. per 100 persons on |
| plus----- | 15   | 25                             | 20               | 30                   | 2nd floor              |
| plus----- | 12   | 20                             | 16               | 24                   | in. per 100 persons on |
| plus----- | 9  | 15                             | 12               | 18                   | 3rd floor              |
| plus----- | 6  | 10                             | 8                | 12                   | in. per 100 persons on |
| plus----- | 3  | 5                              | 4                | 6                    | 4th floor              |
| plus----- | 0  | 0                              | 0                | 0                    | in. per 100 persons on |
|           |  |                                |                  |                      | 5th floor              |
|           |  |                                |                  |                      | in. per 100 persons on |
|           |  |                                |                  |                      | 6th floor              |
|           |  |                                |                  |                      | in. per 100 persons on |
|           |  |                                |                  |                      | 7th floor              |
|           |  |                                |                  |                      | in. per 100 persons on |
|           |  |                                |                  |                      | 8th floor and above    |
|           | but in no case shall such total width be less than |                                |                  |                      |                        |
|           | 30   | 50                             | 40               | 60                   | in. per 100 persons on |
|           |  |                                |                  |                      | any one floor          |

(3) This table is based on the assumption that in buildings over three stories in height the inside stairways will be enclosed with not less than one-hour fire-resistive partitions and fire-resistive doors (sections Ind 160.08-160.09) and that the fire escapes are located as required by section Ind 160.13.

(4) If horizontal exits are provided for any floor, the number of persons accommodated on such floor may be increased at the rate of 100 persons for each 40 inches width of such exits, provided such increase shall not exceed 100 per cent of the number of persons accommodated by the stairways and fire escapes.

*Note:* To facilitate calculations under this order in buildings where the same number of persons are to be accommodated on each floor, the following table shows the number of persons who may be accommodated for each foot in width of enclosed stairways and protected fire escapes, or for each two feet in width of unenclosed stairways and unprotected fire escapes:

Frame and ordinary buildings, 20 persons total, above first story, if not sprinklered; 30 if sprinklered.

(5) Fire-resistive and mill buildings:

| Height of Building     | Fire-Resistive Sprinklered | Fire-Resistive Not Sprinklered | Mill Sprinklered | Mill Not Sprinklered |                       |
|------------------------|----------------------------|--------------------------------|------------------|----------------------|-----------------------|
| 2 stories-----         | 40                         | 24                             | 30               | 20                   | Persons on each floor |
| 3 stories-----         | 27                         | 16                             | 20               | 13                   | Persons on each floor |
| 4 stories-----         | 21                         | 13                             | 16               | 11                   | Persons on each floor |
| 5 stories-----         | 18                         | 11                             | 14               | 9                    | Persons on each floor |
| 6 stories-----         | 17                         | 10                             | 13               | 8                    | Persons on each floor |
| More than 6 stories--- | 16                         | 10                             | 12               | 8                    | Persons on each floor |

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.05 Capacity of buildings.** (1) In calculating the aggregate width of exits, the capacity of buildings shall be established as follows:

(2) In wholesale mercantile establishments and warehouses, by the maximum number of persons employed therein plus an equal number of customers.

(3) In retail mercantile establishments, the capacity shall be determined by allowing one person per 100 square feet of gross floor area, excluding elevators and stairways, and no greater number of persons shall be permitted therein.

(4) In cafes, restaurants and taverns the capacity shall be based on 10 square feet of net floor area per person.

(5) In factory and office buildings, the capacity shall be determined by allowing one person per 75 square feet of net floor area in each occupied space.

**History:** 1-2-56; renum., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.06 Exit doors.** (1) Every door which serves as the exit from a stairway shall be not more than 20 feet distant from the stairway unless the passageway from the stairway to the door is enclosed with not less than one-hour fire-resistive partitions and fire-resistive doors (sections Ind 160.08-160.09). Every such door, and also every door which serves as an exit for more than 25 persons shall be a standard exit door as described in section Ind 160.24.

(2) Exit lights and signs bearing the word EXIT or OUT in plain letters at least 5 inches in height shall be provided over every exit doorway from each floor except the principal entrance on the first

floor. Exit lights and signs shall be installed as required by section Ind 160.24.

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.07 Passageways.** Every public passageway or aisle leading to or from a stairway, fire escape, or exit door shall be kept clear and unobstructed at all times. Where loose chairs or seats would be liable to cause confusion or obstruction, such chairs or seats must be fastened.

**Note on Elevator and Elevator Enclosures.** See general orders on elevators issued by the department.

**History:** 1-2-56; renum., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.08 Lighting.** (1) All passageways and stairways shall have lights at the head and foot of each flight of stairs, and at the intersections of all corridors and passageways. Where fire escapes are required, such fire escapes shall be lighted whenever the stairways are required to be lighted. For exit lights and signs, see sections Ind 160.24 and 161.06.

(2) All gas jets or gas lights in factories or workshops where combustible material is used, shall be properly enclosed by globes or wire cages, or otherwise properly guarded. See also section Ind 160.35.

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.09 Standpipes and extinguishers.** (1) For exterior standpipes, see section Ind 160.22.

(2) First aid standpipes (section Ind 160.26) or fire extinguishers (section Ind 160.27), in such number as may be required by the department, or by the local fire department shall be provided in all buildings where flammable material or any other hazardous condition is present, unless an approved automatic sprinkler system is provided.

**Note:** The term "flammable" is applied to objects which are not only combustible (i.e., can be burned) but which will burn readily or rapidly.

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.10 Automatic sprinklers.** (1) A complete automatic sprinkler system (section Ind 160.28) shall be provided in every building of this classification (except office buildings not used for mercantile purposes) where more than 50 persons are employed or accommodated above the third story, except as provided below.

(2) In every such building where more than 50 persons are accommodated above the second story, an automatic sprinkler system shall be provided in the basement and sub-basements, except where there is no city water supply.

(3) An office building in which one or more of the lower floors is used for mercantile purposes, shall be classed as a mercantile building, except that no sprinklers will be required in such portions of the building as are used for offices only.

(4) No sprinklers will be required in a building of fire-resistive construction whose contents are not readily combustible.

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.11 Fire alarm.** A fire alarm system complying with section Ind 160.29 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.

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.12 Floor loads.** (1) Floors shall not be loaded beyond the safe load which corresponds to the unit stresses specified in sections Ind 53.07, 53.22, 53.24, and 53.28 of the state building code.

(2) 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.

(3) 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.

**Note:** For sanitation requirements applying to places of employment, see general orders on sanitation issued by the department.

For spray coating requirements, see general orders on spray coating issued by the department.

For requirements applying to window cleaning, see the general orders on safety issued by the department.

**History:** 1-2-56; renum., Register, September, 1974, No. 225, eff. 10-1-74.

**Ind 161.13 Heating plants.** Any new installation or replacement of a heating boiler, furnace or power boiler together with the breeching and fuel room in buildings of this classification shall be enclosed in a separate room having a two-hour fire-resistive floor. The walls and ceiling shall be of one-hour fire-resistive construction or better. All openings shall be protected with self closing fire-resistive doors.

(1m) **Exception.** Space heaters, suspended furnaces and suspended direct fired unit heaters fired with various fuels may be used without an enclosure where approved by the department. 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.

**History:** 1-2-56; renum. and am., Register, September, 1974, No. 225, eff. 10-1-74.