




Fire Code Fundamentals

Presenter: Michael Savage

Tuesday, September 12, 2017

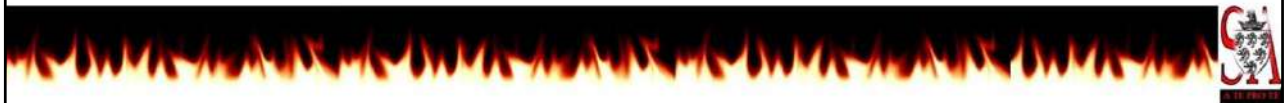
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Fire Code Fundamentals

Presented By:
Michael L. Savage, LLC.
Construction Education, Training and Consulting



About the speaker...

- Licensed Inspector in Maryland for 20 years.
- Former Fire Marshal, Town of Queenstown, MD.
- Served on Maryland Fire Code Development Committee.
- Serves on ICC, UL and NFPA Code Committees including for the NEC, Life Safety Code and Fire Committee.
- Industry Member for 30 Years.
- 1st Chairman of Newly Formed ICC Region XI
- Member of the Board of Managers for ICC-ES.
- Chief Building Official at the City of Rio Rancho, NM.



Ronald Reagan once said:

- “The nine most terrifying words in the English language are, ‘I’m from the government and I’m here to help.’”
- How can Building & Fire Inspections Help?!



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What is the IFC? Arrangement and Format....

- The IFC requirements for hazardous materials, fire-resistance-rated construction, interior finish, fire protection systems, means of egress, emergency and standby power, and temporary structures directly correlate with the requirements of the IBC. The following are correlated to the IBC:

IBC Chapter/Section	IFC Chapter/Section	Subject
Sections 307, 414, 415	Chapters 50-67	Hazardous materials and Group H requirements
Chapter 7	Chapter 7	Fire-resistance-rated construction (Fire and smoke protection features in the IFC)
Chapter 8	Chapter 8	Interior finish, decorative materials and furnishings
Chapter 9	Chapter 9	Fire protection systems
Chapter 10	Chapter 10	Means of egress
Chapter 27	Section 604	Standby and emergency power
Section 3103	Chapter 31	Temporary structures



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101.3 Intent.



- The purpose of this code is to establish:
- Minimum requirements to provide a reasonable level of safety, public health and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; and
- To provide a reasonable level of safety to fire fighters and emergency responders during emergency operations.



102.3 Change of use or occupancy.



- Changes that would place the structure in a different division of the same group or occupancy or in a different group of occupancies, shall require the structure to comply with the requirements of this code and the IBC.
- Subject to the approval of the fire code official, the use or occupancy of an existing structure shall be allowed to be changed and the structure is allowed to be occupied for purposes in other groups without conforming to all of the requirements of this code and the IBC for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.



102.7 Referenced codes.

- The other codes referenced in this code shall be those listed in Chapter 80.
- Such codes SHALL be considered part of the requirements of this code to the prescribed extent of each such reference.
- Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.



104.3 Right of entry.



- Where it is necessary to make an inspection to enforce the provisions of this code, or where the fire code official has reasonable cause to believe that there exists in a building or upon any premises any conditions or violations of this code that make the building or premises unsafe, dangerous or hazardous, the fire code official shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the fire code official by this code.



104.3 Right of entry.

- If such building or premises is occupied, the fire code official shall present credentials to the occupant and request entry.
- If such building or premises is unoccupied, the fire code official shall first make a reasonable effort to locate the owner, the owner's authorized agent or other person having charge or control of the building or premises and request entry.
- If entry is refused, the fire code official has recourse to every remedy provided by law to secure entry.



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104.3 Right of entry.

- 104.3.1 Warrant. Where the fire code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner or occupant or person having charge, care or control of the building or premises shall not fail or neglect, after proper request is made as herein provided, to permit entry therein by the fire code official for the purpose of inspection and examination pursuant to this code.



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104.4 Identification.

- The fire code official shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

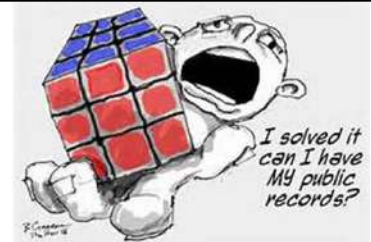


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104.6 Official records.

- The fire code official shall keep official records.
- Official records shall be retained for not less than 5 years or for as long as the structure or activity to which such records relate remains in existence, unless otherwise provided by other regulations.
- 104.6.2 Inspection Records
- 104.6.3 Fire Records
- 104.6.4 Administrative...in writing.



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104.7 Approved materials and equipment.

- Materials, equipment and devices approved by the *fire code official* shall be constructed and installed in accordance with such approval.

FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the code, or a duly authorized representative.



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104.8 Modifications.

MODIFICATION PLAN



- Where there are practical difficulties involved in carrying out the provisions of this code, the fire code official shall have the authority to grant modifications for individual cases,
- The fire code official shall first find that special individual reason makes the strict letter of this code impractical, and
- The modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements.
- The details of action granting modifications shall be recorded and entered in the files of the department of fire prevention.

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105.4.5 Amended construction documents.

- Work shall be installed in accordance with the approved construction documents; and
- Any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents.

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SECTION 202 GENERAL DEFINITIONS

- Requirements for different types of medical care and their occupancy classifications based on definable terms, number of persons and capabilities for self-preservation.

TABLE 202-A Care Categories by Type

2012 ICC

Care Category	Are Occupants Capable of Self-Preservation?
Ambulatory Care	No; the person cannot respond as an individual to an emergency situation.
Custodial	Yes, but at a slower rate of egress and the occupants may have mental illnesses.
Detoxification	No; individuals may cause injury to themselves or others and may be either medicated or secured with limited or no ability to egress.
Personal Care Service	Yes
Medical	Depends on the disease, injury, or illness and whether the patient is rendered incapable of self-preservation.
Incapable of Self-Preservation	No; the person cannot respond as an individual to an emergency situation.

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SECTION 202 GENERAL DEFINITIONS

- **24-HOUR BASIS.** The actual time that a person is an occupant within a facility for the purpose of receiving care.
- It shall not include a facility that is open for 24 hours and is capable of providing care to someone visiting the facility during any segment of the 24 hours.



SECTION 202 GENERAL DEFINITIONS

- **AGENCY.** Any emergency responder department within the jurisdiction that utilizes radio frequencies for communication.
- This could include, but not be limited to, various public safety agencies such as fire departments, emergency medical services and law enforcement.



A Doctor's Office??

- Ambulatory Health Care Facility. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered incapable of self-preservation by the services provided.



SECTION 202 GENERAL DEFINITIONS

- CARE SUITE:
- A group of treatment rooms, care recipient sleeping rooms and their associated support rooms or spaces and circulation space within Group I-2 occupancies where staff are in attendance for supervision of all care recipients within the suite, and the suite is in compliance with the requirements of Section 1014.2.2 and 1014.2.6 (2015 references the IBC).



SECTION 202 GENERAL DEFINITIONS

- **CUSTODIAL CARE:**
- Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living.
- Custodial care includes persons receiving care who evacuate at a slower rate and/or who have mental and psychiatric complications.

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SECTION 202 GENERAL DEFINITIONS, OCCUPANCY CLASSIFICATION.

- Occupancy classifications in the IBC are in Chapter 3.
- Occupancy classifications in the IFC are in Chapter 2, under the definition of OCCUPANCY CLASSIFICATION.

Occupancy Classifications IBC

<i>Occupancy Classification</i>	
<i>Description</i>	<i>Group(s)</i>
<i>Assembly</i>	<i>A-1, A-2, A-3, A-4 and A-5</i>
<i>Business</i>	<i>B</i>
<i>Educational</i>	<i>E</i>
<i>Factory and Industrial</i>	<i>F-1 and F-2</i>
<i>High Hazard</i>	<i>H-1, H-2, H-3, H-4 and H-5</i>
<i>Institutional</i>	<i>I-1, I-2, I-3 and I-4</i>
<i>Mercantile</i>	<i>M</i>
<i>Residential</i>	<i>R-1, R-2, R-3, R-3.1 and R-4</i>
<i>Storage</i>	<i>S-1 and S-2</i>
<i>Utility and Miscellaneous</i>	<i>U</i>

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SECTION 202 GENERAL DEFINITIONS, OCCUPANCY CLASSIFICATION.

- **INSTITUTIONAL GROUP I.** Institutional Group I occupancy includes, among others, the use of a building or structure, or a portion thereof, in which care or supervision is provided to individuals who are or are not capable of self-preservation without physical assistance or in which people are detained for penal or correctional purposes or in which the liberty of the occupants is restricted.
- Institutional occupancies shall be classified as Group I-1, I-2, I-3 or I-4.

TABLE 202-A Care Categories by Type

2012 ICC

Care Category	Are Occupants Capable of Self-Preservation?
Ambulatory Care	No; the person cannot respond as an individual to an emergency situation.
Custodial	Yes, but at a slower rate of egress and the occupants may have mental illnesses.
Detoxification	No; individuals may cause injury to themselves or others and may be either medicated or secured with limited or no ability to egress.
Personal Care Service	Yes
Medical	Depends on the disease, injury, or illness and whether the patient is rendered incapable of self-preservation.
Incapable of Self-Preservation	No; the person cannot respond as an individual to an emergency situation.

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SECTION 304 COMBUSTIBLE WASTE MATERIAL

- **304.1.1 Waste material.** Accumulations of wastepaper, wood, hay, straw, weeds, litter or combustible or flammable waste or rubbish of any type shall not be permitted to remain on a roof or in any court, yard, vacant lot, alley, parking lot, open space, or beneath a grandstand, bleacher, pier, wharf, manufactured home, recreational vehicle or other similar structure.
- How much of this is the function of a IPMC?

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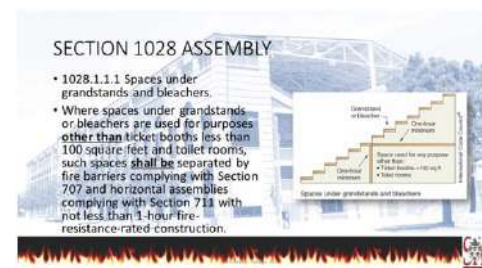
SECTION 304 COMBUSTIBLE WASTE MATERIAL

- 304.1.2 Vegetation. Weeds, grass, vines or other growth that is capable of being ignited and endangering property, shall be cut down and removed by the owner or occupant of the premises. Vegetation clearance requirements in urban-wildland interface areas shall be in accordance with the International Wildland-Urban Interface Code.
- How much of this is the function of a IPMC?



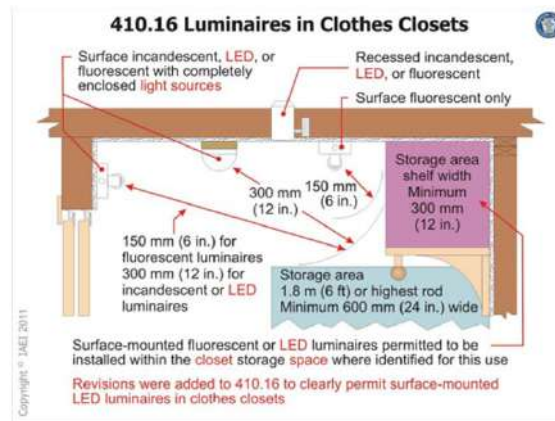
SECTION 304 COMBUSTIBLE WASTE MATERIAL

- 304.1.3 Space underneath seats. Spaces underneath grandstand and bleacher seats shall be kept free from combustible and flammable materials. Except where enclosed in not less than 1-hour fire-resistance-rated construction in accordance with the International Building Code, spaces underneath grandstand and bleacher seats shall not be occupied or utilized for purposes other than means of egress.



SECTION 305 IGNITION SOURCES

- 305.1 Clearance from ignition sources. Clearance between ignition sources, such as luminaires, heaters, flame-producing devices and combustible materials, shall be maintained in an approved manner.



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SECTION 305 IGNITION SOURCES

- 305.4 Deliberate or negligent burning. It shall be unlawful to deliberately or through negligence set fire to or cause the burning of combustible material in such a manner as to endanger the safety of persons or property.



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SECTION 307 OPEN BURNING, RECREATIONAL FIRES AND PORTABLE OUTDOOR FIREPLACES

- 307.1.1 Prohibited open burning, prohibited depending upon atmospheric conditions.
- 307.2 Permit required, obtained prior to the fire.
- 307.3 Extinguishment authority, Fire Code Official.
- 307.4 Location, not within 50' of a bldg.
- 307.5 Attendance, constantly attended until the fire is extinguished.



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SECTION 311 VACANT PREMISES

- 311.1.1 Abandoned premises. Buildings, structures and premises for which an owner cannot be identified or located by dispatch of a certificate of mailing to the last known or registered address,
- which persistently or repeatedly become unprotected or unsecured,
- which have been occupied by unauthorized persons or for illegal purposes, or
- which present a danger of structural collapse or fire spread to adjacent properties
- shall be considered abandoned, declared unsafe and abated by demolition or rehabilitation in accordance with the IPMC and the IBC.

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SECTION 311 VACANT PREMISES

- 311.2.1 Security. Exterior and interior openings accessible to other tenants or unauthorized persons shall be boarded, locked, blocked or otherwise protected to prevent entry by unauthorized individuals.
- The fire code official is authorized to placard, post signs, erect barrier tape or take similar measures as necessary to secure public safety.



SECTION 311 VACANT PREMISES 311.5 - Placards.

- The design of the placards shall use the following symbols:
- 1. ☐ This symbol shall mean that the structure had normal structural conditions at the time of marking.
- 2. ☐ This symbol shall mean that structural or interior hazards exist and interior fire-fighting or rescue operations should be conducted with extreme caution.
- 3. ☒ This symbol shall mean that structural or interior hazards exist to a degree that consideration should be given to limit fire fighting to exterior operations only, with entry only occurring for known life hazards.



SECTION 311 VACANT PREMISES

311.5 - Placards.

- 4. Vacant marker hazard identification symbols: The following symbols shall be used to designate known hazards on the vacant building marker. They shall be placed directly above the symbol.
- 4.1. R/O—Roof open
- 4.2. S/M—Stairs, steps and landing missing
- 4.3. F/E—Avoid fire escapes
- 4.4. H/F—Holes in floor



IBC 406.4.3 Vehicle barriers.

- Vehicle barriers not less than 2' 9" in height shall be placed where the vertical distance from the floor of a drive lane or parking space to the ground or surface directly below is greater than 1 foot.
- Vehicle barriers shall comply with the loading requirements of Section 1607.8.3.
- Not required in vehicle storage compartments in a mechanical access parking garage.



SECTION 312 VEHICLE IMPACT PROTECTION

Guard posts shall comply with all of the following requirements:

- 1. Constructed of steel not less than 4 inches in diameter and concrete filled.
- 2. Spaced not more than 4 feet between posts on center.
- 3. Set not less than 3 feet deep in a concrete footing of not less than a 15-inch diameter.
- 4. Set with the top of the posts not less than 3 feet above ground.
- 5. Located not less than 3 feet from the protected object.



SECTION 313 FUELED EQUIPMENT

- Fueled equipment including, but not limited to, motorcycles, mopeds, lawn-care equipment, portable generators and portable cooking equipment, shall not be stored, operated or repaired within a building.
- Exceptions:
 - 1. Buildings or rooms constructed for such use in accordance with the IBC.
 - 2. Where allowed by Section 314.
 - 3. Utilized for maintenance purposes is allowed in approved locations, the aggregate fuel capacity of the stored equipment does not exceed 10 gallons and the building is equipped throughout with an automatic sprinkler system.



SECTION 314 INDOOR DISPLAYS



- Fixtures and displays unobstructed access to exits.
- Highly combustible goods can not block means of egress.
- Vehicles, boats or other motorcraft shall not be located indoors except as follows:
 1. Batteries are disconnected.
 2. Fuel in fuel tanks does not exceed one-quarter tank or 5 gallons (whichever is least).
 3. Fuel tanks and fill openings are closed and sealed to prevent tampering.
 4. Vehicles, boats or other motorcraft equipment are not fueled or defueled within the building.



SECTION 315 GENERAL STORAGE

- 315.3.1 Ceiling clearance. Storage shall be maintained 2 feet or more below the ceiling in nonsprinklered areas of buildings or not less than 18 inches below sprinkler head deflectors in sprinklered areas of buildings.
- 315.3.2 Means of egress. Combustible materials shall not be stored in exits or enclosures for stairways and ramps.



SECTION 315 GENERAL STORAGE

- 315.3.3 Equipment rooms. Combustible material shall not be stored in boiler rooms, mechanical rooms, electrical equipment rooms.
- 2015 added “or in fire command centers as specified in Section 508.1.5”.



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316.3 Pitfalls.



- The intentional design or alteration of buildings to disable, injure, maim or kill intruders is prohibited.
- A person shall not install and use firearms, sharp or pointed objects, razor wire, explosives, flammable or combustible liquid containers, or dispensers containing highly toxic, toxic, irritant or other hazardous materials in a manner that could passively or actively disable, injure, maim or kill a fire fighter who forcibly enters a building for the purpose of controlling or extinguishing a fire, rescuing trapped occupants or rendering other emergency assistance.

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316.4 Obstructions On Roofs.

- Wires, cables, ropes, antennas, or other suspended obstructions installed on the roof of a building having a roof slope of less than 30 degrees shall not create an obstruction that is less than 7 feet high above the surface of the roof.



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316.4 Obstructions On Roofs.

- Exceptions:
 - 1. Such obstruction shall be permitted where the wire, cable, rope, antennae or suspended obstruction is encased in a white 2 minimum diameter plastic pipe or an approved equivalent.
 - 2. Such obstruction shall be permitted where there is a solid obstruction below such that accidentally walking into the wire, cable, rope, antennae or suspended obstruction is not possible.
- Change : Guards required on certain roof obstructions.

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CHAPTER 4

EMERGENCY PLANNING AND PREPAREDNESS

• FIRE SAFETY AND EVACUATION PLAN...where required?

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Group A, other than Group A occupancies used exclusively for purposes of religious worship that have an <i>occupant load</i> less than 2,000. 2. Group B buildings having an <i>occupant load</i> of 500 or more persons or more than 100 persons above or below the lowest <i>level of exit discharge</i>. 3. Group E. 4. Group F buildings having an <i>occupant load</i> of 500 or more persons or more than 100 persons above or below the lowest <i>level of exit discharge</i>. 5. Group H. 6. Group I. 7. Group R-1. | <ol style="list-style-type: none"> 8. Group R-2 college and university buildings. 9. Group R-4. 10. High-rise buildings. 11. Group M buildings having an <i>occupant load</i> of 500 or more persons or more than 100 persons above or below the lowest <i>level of exit discharge</i>. 12. Covered malls exceeding 50,000 square feet (4645 m²) in aggregate floor area. 13. Open mall buildings exceeding 50,000 square feet (4645 m²) in aggregate area within perimeter line. 14. Underground buildings. 15. Buildings with an atrium and having an occupancy in Group A, E or M. |
|--|---|

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CHAPTER 4

EMERGENCY PLANNING AND PREPAREDNESS

404.3.1 COMPONENTS OF AN EVACUATION (Fire Safety) PLAN

- Procedures for employees who must remain to operate critical equipment before evacuating.
- Escape routes - primary & secondary
- Maps - posted indicating escape routes, first aid kits and extinguishers
- Procedures for assisted rescue for persons unable to use the general means of egress unassisted.
- Procedures for accounting for employees and occupants after evacuation has been completed.



SECTION 404

FIRE SAFETY AND EVACUATION PLAN

404.2.3.1 Lockdown plan contents. Lockdown plans shall be approved by the fire code official and shall include the following:

1. Initiation. The plan shall include instructions for reporting an emergency that requires a lockdown.
2. Accountability. The plan shall include accountability procedures for staff to report the presence or absence of occupants.
3. Recall. The plan shall include a prearranged signal for returning to normal activity.
4. Communication and coordination. The plan shall include an approved means of two-way communication between a central location and each secured area.

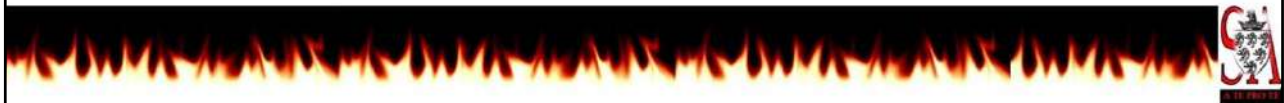
LOCKDOWN
Locks, Lights, Out of Sight
 Lockdown is called when there is a threat or hazard inside a college building.

Students:

- Move away from sight
- Maintain silence

Instructors/Staff:

- Lock classroom door
- Lights out
- Move away from sight
- Maintain silence
- Wait for First Responders to open door

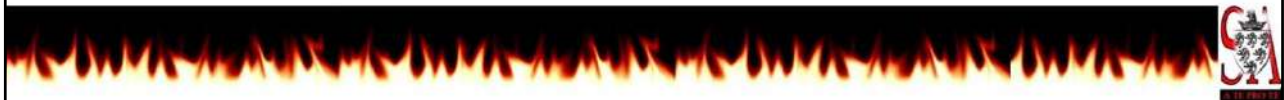


SECTION 404

FIRE SAFETY AND EVACUATION PLAN

404.2.3.2 Training frequency. The training frequency shall be included in the lockdown plan. The lockdown drills shall not substitute for any of the fire and evacuation drills required in Section 405.2.

404.2.3.3 Lockdown notification. The method of notifying building occupants of a lockdown shall be included in the plan. The method of notification shall be separate and distinct from the fire alarm signal.



SECTION 404

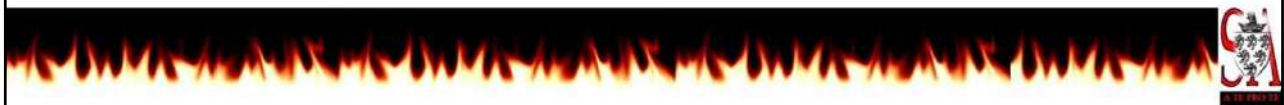
FIRE SAFETY AND EVACUATION PLAN

The plan should be reviewed and, if possible, approved by...

Fire Code Officials (either State or Local officials)

Building Officials??

404.4 Availability. Fire safety and evacuation plans shall be available in the workplace for reference and review by employees, and copies shall be furnished to the fire code official for review upon request.



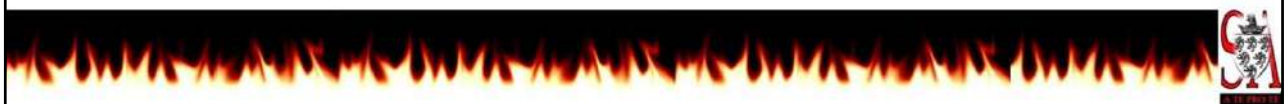
SECTION 405

EMERGENCY EVACUATION DRILL

FIRE DRILLS.....are conducted at least once each year, but some agencies may require them more frequently.

TABLE 405.2
FIRE AND EVACUATION DRILL
FREQUENCY AND PARTICIPATION

GROUP OR OCCUPANCY	FREQUENCY	PARTICIPATION
Group A	Quarterly	Employees
Group B ^c	Annually	Employees
Group E	Monthly ^a	All occupants
Group F	Annually	Employees
Group I	Quarterly on each shift	Employees ^b
Group R-1	Quarterly on each shift	Employees
Group R-2 ^d	Four annually	All occupants
Group R-4	Quarterly on each shift	Employees ^b
High-rise buildings	Annually	Employees



Section 408

Use and Occupancy-Related Requirements

408.11.2 Tenant identification. Each occupied tenant space provided with a secondary exit to the exterior or exit *corridor* shall be provided with tenant identification by business name and/or address. Letters and numbers shall be posted on the *corridor* side of the door, be plainly legible and shall contrast with their background.

Exception: Tenant identification is not required for anchor stores.



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CHAPTER 5

FIRE SERVICE FEATURES

- 501.4 Timing of installation. Where fire apparatus access roads or a water supply for fire protection are required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except when approved alternative methods of protection are provided.
- Temporary street signs shall be installed at each street intersection where construction of new roadways allows passage by vehicles in accordance with Section 505.2.

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CHAPTER 5

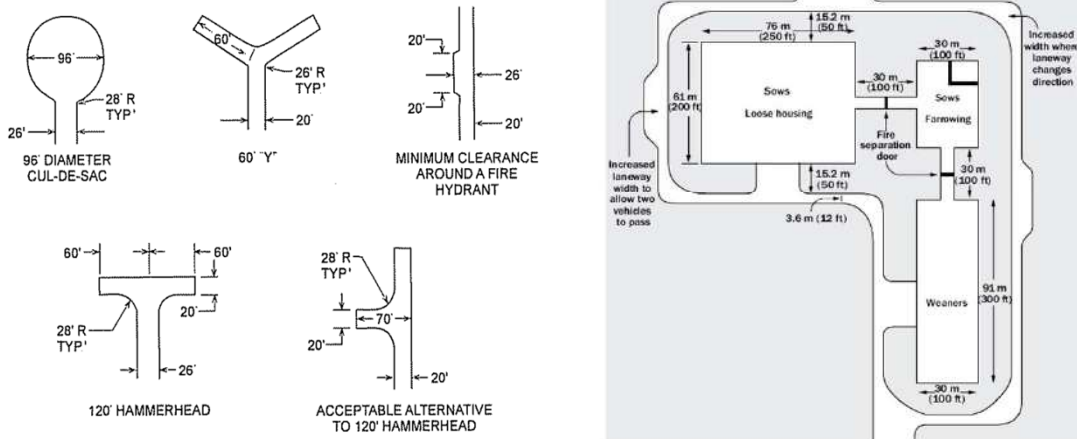
FIRE SERVICE FEATURES

- 503.1.1 Buildings and facilities. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction.
- The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

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503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches.



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CHAPTER 5

FIRE SERVICE FEATURES

- 503.3 Marking. Where required by the fire code official, approved signs or other approved notices or markings that include the words **NO PARKING—FIRE LANE** shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof.
- The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.



SECTION 505

PREMISES IDENTIFICATION

- 505.1 Address identification. New and existing buildings shall have approved building/address numbers or address identification.
- The address identification shall be legible and placed in a position that is visible from the street or road fronting the property.
- Address identification characters shall contrast with their background.
- Address numbers shall be Arabic numbers or alphabetical letters.
- Numbers shall not be spelled out.
- Characters shall be no less than 4" high with a minimum stroke width of ½".



SECTION 505 PREMISES IDENTIFICATION

- 505.2 Street or road signs. Streets and roads shall be identified with approved signs.
- Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles.
- Signs shall be of an approved size, weather resistant and be maintained until replaced by permanent signs.



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SECTION 507 FIRE PROTECTION WATER SUPPLIES

- 507.1 Required water supply. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction.



507.2 Type of water supply. A water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

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SECTION 507 FIRE PROTECTION WATER SUPPLIES

- 507.4 Water supply test. The fire code official shall be notified prior to the water supply test.
- Water supply tests shall be witnessed by the fire code official or approved documentation of the test shall be provided to the fire code official prior to final approval of the water supply system.
- Who approves the testing??

507.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved method.



SECTION 507 FIRE PROTECTION WATER SUPPLIES

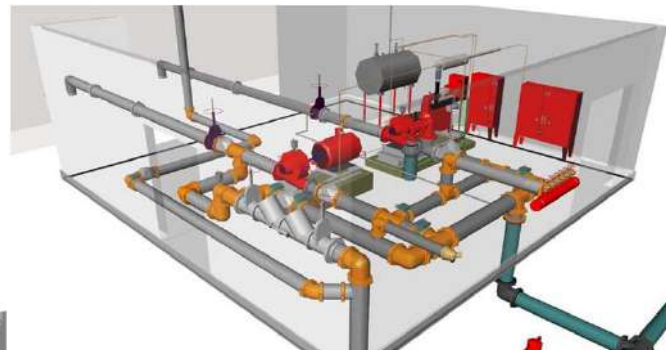
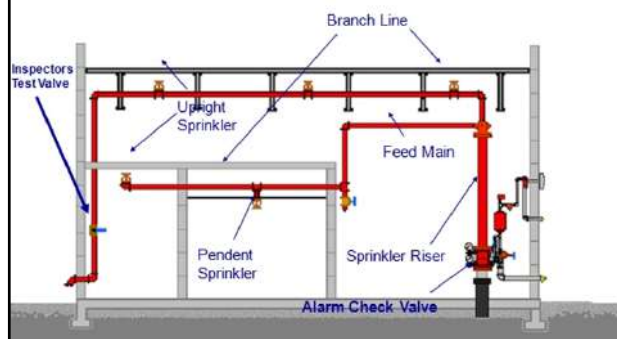


- 507.5.2 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the fire code official.
- Fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired where defective.
- Additions, repairs, alterations and servicing shall comply with approved standards.
- Records of tests and required maintenance shall be maintained.



SECTION 507 FIRE PROTECTION WATER SUPPLIES

- What happens when the water flow isn't sufficient??



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SECTION 510 EMERGENCY RESPONDER RADIO COVERAGE

- 510.1 Emergency responder radio coverage in new buildings.
- All new buildings shall have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building.
- This section shall not require improvement of the existing public safety communication systems.
- Three (3) exceptions including a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained instead of an approved radio coverage system where approved by the building official and the fire code official.



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SECTION 510 EMERGENCY RESPONDER RADIO COVERAGE

- 510.3 Permit required. A construction permit for the installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.5.
- Maintenance performed in accordance with this code is not considered a modification and does not require a permit.



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SECTION 603 FUEL-FIRED APPLIANCES

- 603.1.1 Manufacturer's instructions. The installation shall be made in accordance with the manufacturer's instructions and applicable federal, state and local rules and regulations.
- Where it becomes necessary to change, modify or alter a manufacturer's instructions in any way, written approval shall first be obtained from the manufacturer.



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SECTION 603 FUEL-FIRED APPLIANCES

- 603.1.7 Clearances. Working clearances between oil fired appliances and electrical panelboards and equipment shall be in accordance with NFPA 70.
- Clearances between oil-fired equipment and oil supply tanks shall be in accordance with NFPA 31.



SECTION 603 FUEL-FIRED APPLIANCES

- 603.4 Portable unvented heaters. Portable unvented fuel fired heating equipment shall be prohibited in occupancies in Groups A, E, I, R-1, R-2, R-3 and R-4.
- Exceptions:
 1. Listed and approved unvented fuel-fired heaters, including portable outdoor gas-fired heating appliances, in one- and two-family dwellings.
 2. Portable outdoor gas-fired heating appliances shall be allowed in accordance with Section 603.4.2.



SECTION 603 FUEL-FIRED APPLIANCES

- 603.7 Discontinuing operation of unsafe heating appliances.
- The fire code official is authorized to order that measures be taken to prevent the operation of any existing stove, oven, furnace, incinerator, boiler or any other heat-producing device or appliance found to be defective or in violation of code requirements for existing appliances after giving notice to this effect to any person, owner, firm or agent or operator in charge of the same.
- The fire code official is authorized to take measures to prevent the operation of any device or appliance without notice when inspection shows the existence of an immediate fire hazard or when imperiling human life.
- The defective device shall remain withdrawn from service until all necessary repairs or alterations have been made.



SECTION 604 EMERGENCY AND STANDBY POWER SYSTEMS

- 604.5 Emergency Lighting Equipment. Emergency lighting shall be inspected and tested in accordance with Section 604.5.1 through 604.5.2.1.
- 604.5.1 Activation Test. An activation test of the emergency lighting equipment shall be completed monthly. The activation test shall ensure the emergency lighting activates automatically upon normal electrical disconnect and stays sufficiently illuminated for a minimum of 30 seconds.



SECTION 604 EMERGENCY AND STANDBY POWER SYSTEMS



- 604.5.1.1 Activation Test Record. Records shall be maintained on the premises for a minimum of 3 years and submitted to the fire code official upon request.
- The record shall include the location of the emergency lighting tested, whether the unit passed or failed, the date of the test, and the person completing the test.

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SECTION 604 EMERGENCY AND STANDBY POWER SYSTEMS

- 604.5.2 Power Test. For battery powered emergency lighting, a power test of the emergency lighting equipment shall be completed annually. The power test shall operate the emergency lighting for a minimum of 90 minutes and shall remain sufficiently illuminated for the duration of the test.
- 604.5.2.1 Power Test Record. Records shall be maintained on the premises for a minimum of 3 years and submitted to the fire code official upon request. The record shall include the location of the emergency lighting tested, whether the unit passed or failed, the date of the test, and the person completing the test.
- 604.5 604.6 Supervision of Maintenance and Testing. Routine maintenance, inspection and operational testing shall be overseen by a properly instructed individual.
- Change: Testing requirements added for emergency lighting equipment.

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SECTION 604 EMERGENCY AND STANDBY POWER SYSTEMS

- Common Battery Types for Emergency Lighting.
- Log Book of Emergency Lighting Testing.
- What about Generators?
 - IBC 104.11.1 Research reports.
 - IBC 1703.2 Written approval.
 - IFC 104.7.2 Technical assistance.



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SECTION 610 COMMERCIAL KITCHEN COOKING OIL STORAGE

- 610.1 General. Storage of cooking oil (grease) in commercial cooking operations shall comply with Chapter 57.
- Systems used to store cooking oils in larger than 60 gallon aboveground tanks shall also comply with Sections 610.2 through 610.5. Cooking oil shall be classified as a Class IIIB liquid unless otherwise determined by testing.
- 610.2 Storage Tanks. Cooking oil storage tanks shall be listed in accordance with UL 142 or UL 80, and shall be installed in accordance with Section 5704 and the tank manufacturer's instructions.



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SECTION 610

COMMERCIAL KITCHEN COOKING OIL STORAGE

- 610.3 Other Storage Components. Cooking oil storage system components, including but not limited to piping, connections, fittings, valves, tubing, and other related components used for the transfer of cooking oil from the cooking appliance to the storage tank, and from the storage tank to the discharge point, shall be installed in accordance with Section 5703.6.
- 610.4 Tank Venting. Normal and emergency venting for cooking oil storage tanks shall terminate outside the building as specified in Sections 5704.2.7.3 and 5704.2.7.4.
- 610.5 Electrical Equipment. Electrical equipment used for the operation and heating of the cooking oil storage system shall be listed and comply with NFPA 70.



703.2 Opening protectives.

- Opening protectives shall be maintained in an operative condition in accordance with NFPA 80.
- Where allowed by the fire code official, the application of field-applied labels associated with the maintenance of opening protectives shall follow the requirements of the approved third-party certification organization accredited for listing the opening protective.
- Fire doors and smoke barrier doors shall not be blocked or obstructed, or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused or damaged.
- Fire door assemblies shall not be modified.





703.2.1 Signs.

- Where required by the fire code official, a sign shall be permanently displayed on or near each fire door in letters not less than 1 inch high to read as follows:
 1. For doors designed to be kept normally open: **FIRE DOOR—DO NOT BLOCK.**
 2. For doors designed to be kept normally closed: **FIRE DOOR—KEEP CLOSED.**



What About NFPA 80 and Signs? 4.1.4.2 Means of Attachment.

- 4.1.4.2.1 Signs shall be attached to fire doors by use of an adhesive.
- 4.1.4.2.2 Mechanical attachments such as screws or nails shall not be permitted.
- 4.1.4.3 Signs shall not be installed on glazing material in fire doors.
- 4.1.4.4 Signs shall not be installed on the surface of fire doors so as to impair or otherwise interfere with the proper operation of the fire door.



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703.1.1 Firestopping and Draftstopping

- Firestopping
- Fire Walls, Fire Barriers, Horizontal Assemblies, Smoke Barriers, Fire Partitions, Smoke Partitions
- –Penetrations – Through & Membrane Pens
- –Joint Systems
- –Perimeter Fire Containment Systems
- –Tested & Listed Systems and Engineering Judgments
- –Plan Review & Field Inspection



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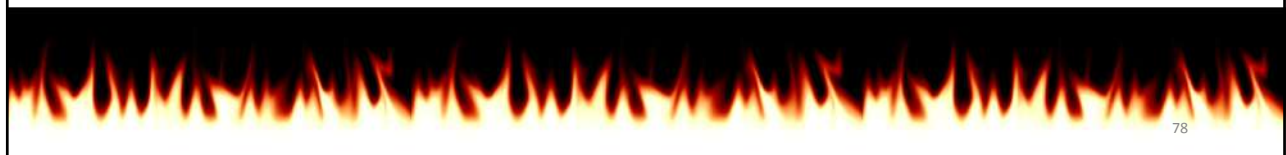
Firestopping and Draftstopping

- Code Requirements – Firestopping
- –International Building Code – Chapter 701.1
 - New Construction
- –International Fire Code – Chapter 701.1
 - Existing Buildings
- Enforced by Fire Marshal/Building Official (Deputies?)
 - Minimum requirements for Construction & Maintenance



IBC Chapter 7 Fire Resistive Construction

- Rated Assemblies-Testing – 703
- Fire- Walls, Barriers, Partitions – 706, 707 & 708
- Smoke- Walls, Barriers, Partitions – 709 & 710
- Shaft Enclosures Rating - 713
- Openings-Penetrations - 714
- Concealed Spaces - 718
- Draft/Fire Stops - 718



IBC 703.7 Marking and identification.

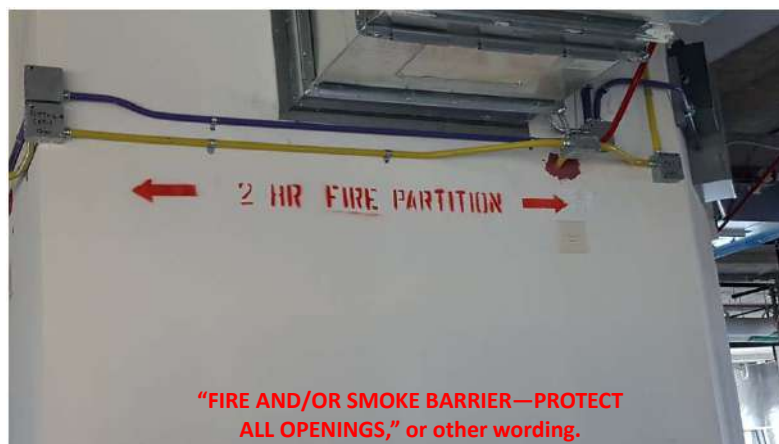
- Where there is an accessible concealed floor, floor-ceiling or attic space, fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in the concealed space. Such identification shall:
 1. Be located within 15 feet of the end of each wall and at intervals not exceeding 30 feet measured horizontally along the wall or partition.
 2. Include lettering not less than 3 inches in height with a minimum 3/8-inch stroke in a contrasting color incorporating the suggested wording,

SMOKE BARRIER—PROTECT

ther

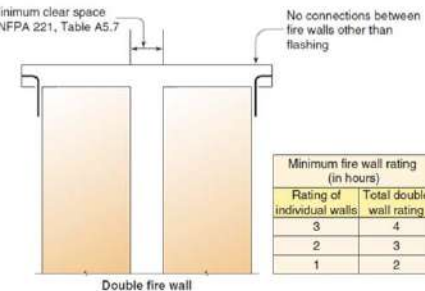


IBC 703.7 Marking and identification.



IBC 706.2 Fire Wall Structural Stability

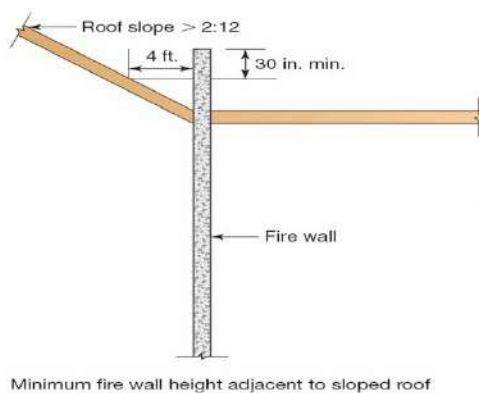
- *Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions.*
- The use of NFPA 221 for fire wall design and construction is considered as complying and it was expanded to allow the use of the “tied” and “cantilevered” options addressed in that standard.



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IBC Section 706.6.2



- Where a *fire wall* serves as an interior wall for a building, and the roof on one side or both sides of the fire wall slopes toward the fire wall at a slope greater than two units vertical in 12 units horizontal (2:12), the *fire wall shall*:
- *extend to a height equal to the height of the roof located 4 feet from the fire wall plus an additional 30 inches.*
- *In no case shall the extension of the fire wall be less than 30 inches.*

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IBC 707.5 Continuity.



- *Fire barriers shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above.....*
- **Exceptions:**
 - 1. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.
 - 2. *Interior exit stairway and ramp enclosures required by Section 1023 and exit access stairway and ramp enclosures required by Section 1019 shall be permitted to terminate at a top enclosure complying with Section 713.12.*



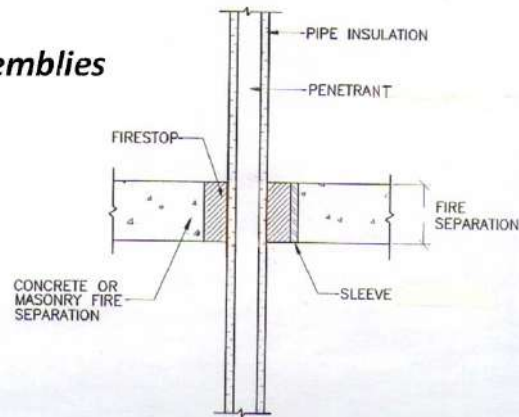
Fire Resistance Rated Compartmentation and Structural Fire Resistance

- Continuous Walls / Floors – Fire & Smoke...
- Interior and Exterior Walls
- Firestop Systems
- Penetrations
- Joints – Walltops – Perimeter Joints
- Fire Damper Duct Systems
- Fire Doors and Hardware Systems
- Rolling & Swinging
- Fire Glass



Firestopping

- Fire Walls and Floors –
- **Continuity - Fire Resistance Rated Assemblies**
 - Concrete
 - Concrete Block
 - Plaster
 - Gypsum Block
 - Drywall
 - Floor/Ceiling Assemblies
 - Firestop Systems
- “Tested & Listed Wall/Floor Systems”



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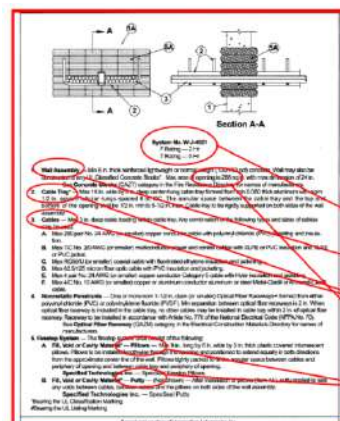
How to Verify a UL Listing...

Firestop Systems Directories - UL®

The first letter is either “F” for floors, “W” for walls or “C” for a combination of walls and floors.

The second letter or combination of letters, signify the following:

- A Concrete floors < 5”
- B Concrete floors > 5”
- C Frame floors
- D Deck construction
- E – I Reserved for future use
- J Concrete or Masonry walls < 8”
- K Concrete or Masonry walls > 8”
- L Framed Walls
- M Bulkheads



Every application has its own unique UL tested assembly which specifies:


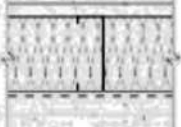
- Hourly Fire Rating
- Type of Barrier
- Type of Penetrant
- Min/Max Hole/Gap Size
- Firestop Products

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What Happens When A Fire Wall is Opened During A Tenant Improvement?

- UL Fire Resistance Design Manual states:
- Base layer 5/8" type X gypsum wallboard or veneer base applied at right angles to each side of 1 5/8" proprietary steel studs 24" o.c. with 1" Type S drywall screws 16" o.c.
- Face layer 5/8" proprietary type X gypsum wallboard or gypsum veneer base applied at right angles to studs with 1 5/8" Type S drywall screws 16" o.c.
- Face layer horizontal joints offset not less than 12" from base layer horizontal joints.

2 HOUR FIRE	60 to 64 STC SOUND
	
Thickness:	4 1/8" (Fire) 6 5/8" (Sound)
Approx. Weight:	12 psf
Fire Test:	UL R3660, 07NK14500, 8-16-07, UL Design V450
Sound Test:	RAL TL07-359, 11-8-07

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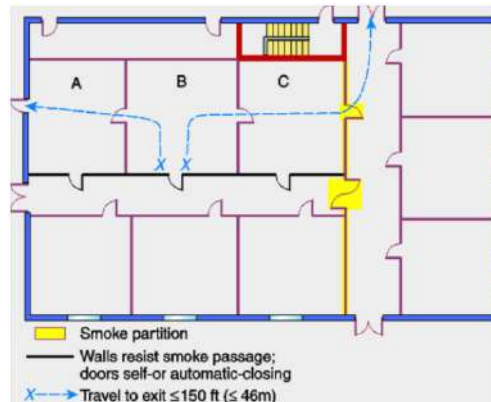


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What is the Difference Between a Smoke Barrier and Partition???

- **709.3 Fire-resistance rating.** A 1-hour *fire-resistance rating* is required for *smoke barriers*.
- **710.3 Fire-resistance rating.** Unless required elsewhere in the code, smoke partitions are not required to have a *fire-resistance rating*.
- **i.e. barriers are rated walls!!**



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IBC 709.5 Openings in a *smoke barrier*.

- **New Exception:**
- 1. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of 3/4 inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer's listing, positive-latching devices are not required.

FIRE AND SMOKE BARRIER
PROTECT ALL OPENINGS

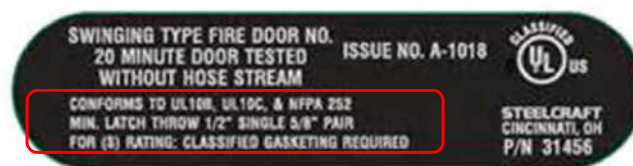


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709.5.1 Group I-2 and ambulatory care facilities.

- In Group I-2 and *ambulatory care facilities*, where doors are installed across a corridor, the doors shall be automatic closing by smoke detection in accordance with Section 716.5.9.3 and shall have a vision panel with fire-protection-rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested.



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803.1 General.

- This section shall limit the allowable fire performance and smoke development of interior wall and ceiling finishes and interior wall and ceiling trim in existing buildings based on location and occupancy classification.
- Interior wall and ceiling finishes shall be classified in accordance with Section 803 of the International Building Code.
- Such materials shall be grouped in accordance with ASTM E 84, as indicated in Section 803.1.1, or in accordance with NFPA 286, as indicated in Section 803.1.2.

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803.2 Stability.

- Interior finish materials regulated by this chapter shall be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200°F for not less than 30 minutes.



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803.3 Interior finish requirements based on occupancy.

- Interior wall and ceiling finish shall have a flame spread index not greater than that specified in Table 803.3 for the group and location designated.

TABLE 803.3
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY^a

GROUP	SPRINKLERED ^b			NONSPRINKLERED		
	Interior exit stairways and interior exit ramps and exit passageways ^{a, b}	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces ^c	Interior exit stairways and interior exit ramps and exit passageways ^{a, b}	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces ^c
A-1 & A-2	B	B	C	A	A ^d	B ^e
A-3 ^f , A-4, A-5	B	B	C	A	A ^d	C
B, E, M, R-1, R-4	B	C	C	A	B	C
F	C	C	C	B	C	C
H	B	B	C ^g	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B ^{h, i}	A	A	B
I-3	A	A ^j	C	A	A	B
I-4	B	B	B ^{h, i}	A	A	B
R-2	C	C	C	B	B	C
R-3	C	C	C	C	C	C
S	C	C	C	B	B	C
U	No Restrictions			No Restrictions		



803.1.1 Classification in accordance with ASTM E 84.

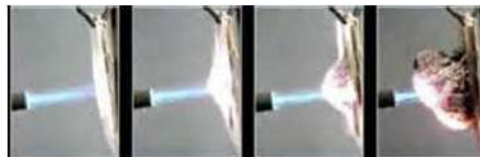
- Interior Surface Coverings: Class A, Class B and Class C
- Flame Spread Rating /Smoke Develop (Flame spread or surface burning characteristics rating is a ranking derived by laboratory standard test methodology of a material's propensity to burn rapidly and spread flames.)
- Class A is the lowest flame spread and C being the highest.

Class	Flame Spread Index	Smoke-Developed
A	0-25	0-450
B	26-75	0-450
C	76-200	0-450



803.4 Fire-retardant coatings.

- The required flame spread or smoke-developed index of surfaces in existing buildings shall be allowed to be achieved by application of approved fire-retardant coatings, paints or solutions to surfaces having a flame spread index exceeding that allowed.
- Such applications shall comply with NFPA 703 and the required fire-retardant properties shall be maintained or renewed in accordance with the manufacturer's instructions.



803.5 Textiles.

- Where used as interior wall or ceiling finish materials, textiles, including materials having woven or nonwoven, napped, tufted, looped or similar surface, shall comply with the requirements of this section.



803.5.1 Textile wall or ceiling coverings.

- Textile wall or ceiling coverings shall comply with one of the following:
 1. The wall or ceiling covering shall have a Class A flame spread index in accordance with ASTM E 84 or UL 723, and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2;
 2. The wall covering shall meet the criteria of Section 803.5.1.1 or 803.5.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system, including adhesive, of actual use; or
 3. The wall or ceiling covering shall meet the criteria of Section 803.1.2.1 when tested in accordance with NFPA 286 using the product-mounting system, including adhesive, of actual use.



803.5.2 Newly Introduced Textile Wall and Ceiling Coverings.

- **Newly introduced textile wall and ceiling coverings** shall comply with one of the following:
 - 1. The wall or ceiling covering shall have a class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by automatic sprinklers installed in accordance with
 - Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.
 - 2. The wall covering shall meet the criteria of Section 803.5.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system (including adhesive) of actual use, or
 - 3. The wall or ceiling covering shall meet the criteria of Sections 803.1.2.1 when tested in accordance with NFPA 286 using the product mounting system (including adhesive) of actual use.
- Change: Requirements for newly installed interior finishes added.



803.6 Expanded Vinyl or Ceiling Coverings.

- **Expanded vinyl wall or ceiling coverage** shall comply with one of the following:
 - 1. The wall or ceiling covering shall have a class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by automatic sprinklers installed in accordance with
 - Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.
 - 2. The wall covering shall meet the criteria of Section 803.5.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system (including adhesive) of actual use.
 - 3. The wall or ceiling covering shall meet the criteria of Sections 803.1.2.1 when tested in accordance with NFPA 286 using the product mounting system (including adhesive) of actual use.



803.6 Expanded Vinyl or Ceiling Coverings.



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803.8 Foam plastic materials.

- Foam plastic materials shall not be used as interior wall and ceiling finish unless specifically allowed by Section 803.8.1 or 803.8.2. Foam plastic materials shall not be used as interior trim unless specifically allowed by Section 803.8.3.



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803.8.1 Combustibility characteristics.

- Foam plastic materials shall be allowed on the basis of fire tests that substantiate their combustibility characteristics for the use intended under actual fire conditions, as indicated in Section 2603.9 of the International Building Code.
- This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.
- 803.8.2 Thermal barrier. Foam plastic material shall be allowed if it is separated from the interior of the building by a thermal barrier in accordance with Section 2603.4 of the International Building Code.



804.1 Interior trim.

- Material, other than foam plastic, used as interior trim in new and existing buildings shall have minimum Class C flame spread and smoke-developed indices, when tested in accordance with ASTM E 84 or UL 723, as described in Section 803.1.1.
- Combustible trim, excluding handrails and guardrails, shall not exceed 10 percent of the specific wall or ceiling areas to which it is attached.



804.1.1 Alternative testing.

- When the interior trim material has been tested as an interior finish in accordance with NFPA 286 and complies with the acceptance criteria in Section 803.1.2.1, it shall not be required to be tested for flame spread index and smoke-developed index in accordance with ASTM E 84.



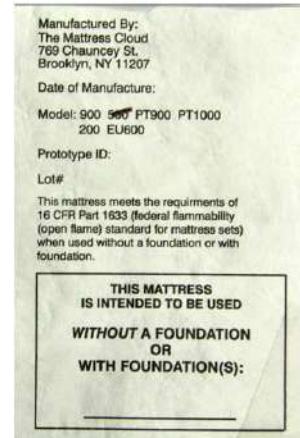
804.2 Foam plastic.

- Foam plastic used as interior trim shall comply with Sections 804.2.1 through 804.2.4.
- 804.2.1 Density. The minimum density of the interior trim shall be 20 pounds per cubic foot.
- 804.2.2 Thickness. The maximum thickness of the interior trim shall be 1/2 inch and the maximum width shall be 8 inches.
- 804.2.3 Area limitation. The interior trim shall not constitute more than 10% of the specific wall or ceiling area to which it is attached.
- 804.2.4 Flame spread. The flame spread index shall not exceed 75 where tested in accordance with ASTM E 84 or UL 723. The smoke-developed index shall not be limited.
 - Exception: When the interior trim material has been tested as an interior finish in accordance with NFPA 286 and complies with the acceptance criteria in Section 803.1.2.1, it shall not be required to be tested for flame spread index in accordance with ASTM E 84 or UL 723.



SECTION 805, UPHOLSTERED FURNITURE AND MATTRESSES IN NEW AND EXISTING BUILDINGS

- Group I-1, Condition 2, Group I-2, nursing homes and hospitals, Group I-3, detention and correction facilities and Group R-2 college and university dormitories shall comply with;
 - Ignition by cigarettes tested in accordance with NFPA 261 or 260, depending.
 - Heat release rate in accordance with ASTM E 1537.
 - Identification of an approved agency.
 - Mattresses meet the preceding requirements as well.



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806.4 Open flame.

- Candles and open flames shall not be used on or near decorative vegetation.
- Natural cut trees shall be kept a distance from heat vents and any open flame or heat-producing devices at least equal to the height of the tree.



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806.5 Electrical fixtures and wiring.

- The use of unlisted electrical wiring and lighting on natural cut trees and artificial decorative vegetation shall be prohibited.
- The use of electrical wiring and lighting on artificial trees constructed entirely of metal shall be prohibited.



SECTION 807 DECORATIVE MATERIALS OTHER THAN DECORATIVE VEGETATION IN NEW AND EXISTING BUILDINGS

807.1 General requirements. In occupancies in Groups A, E, I and R-1, and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with Section 807.2 or be noncombustible.



807.1 General Requirements.

- Fixed or movable walls and partitions, paneling, wall pads and crash pads applied structurally or for decoration, acoustical correction, surface insulation or other purposes shall be considered interior finish if they cover 10% or more of the wall or of the ceiling area, and shall not be considered decorative materials or furnishings.



807.4 Occupancy-based requirements.

- In occupancies in Group A, E and I-4 day care facilities, decorative materials other than decorative vegetation shall comply with Sections 807.4.1 through 807.4.4.2.
 - No highly flammable or explosive materials.
 - Fire-retardant materials to remain.
 - No obstructions permitted for egress.



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807.4.3.1 Storage in corridors and lobbies (Education)

- Clothing and personal effects shall not be stored in corridors and lobbies.
 - Exceptions:
 - 1. Corridors protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.
 - 2. Corridors protected by an approved smoke detection system installed in accordance with Section 907.
 - 3. Storage in metal lockers, provided the minimum required egress width is maintained.



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807.4.4 Group I-4. The requirements in Sections 807.4.4.1 through 807.4.4.2. shall apply to day care facilities in Group I-4.

- 807.4.4.1 Storage in corridors and lobbies. Clothing and personal effects shall not be stored in corridors and lobbies.
 - Exceptions:
 - 1. Corridors protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.
 - 2. Corridors protected by an approved fire alarm system installed in accordance with Section 907.
 - 3. Storage in metal lockers, provided the minimum required egress width is maintained.
- 807.4.4.2 Artwork in corridors. Artwork and teaching materials shall be limited on walls of corridors to not more than 20 percent of the wall area.
- 2015 IFC 807.5.5.3 Artwork in classrooms. Artwork and teaching materials shall be limited on walls of classrooms to not more than 50 percent of the specific wall area to which they are attached.



CHAPTER 9 FIRE PROTECTION SYSTEMS

- **901.1 Scope.** The provisions of this chapter shall specify where fire protection systems are required and shall apply to the design, installation, inspection, operation, testing and maintenance of all fire protection systems.



SECTION 901 GENERAL

- **901.1 Scope.** The provisions of this chapter shall specify where *fire protection systems* are required and shall apply to the design, installation, inspection, operation, testing and maintenance of all *fire protection systems*.
- **FIRE PROTECTION SYSTEM.** *Approved* devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.



901.2 Construction documents.

- The fire code official shall have the authority to require construction documents and calculations for all fire protection systems and to require permits be issued for the installation, rehabilitation or modification of any fire protection system.
- Construction documents for fire protection systems shall be submitted for review and approval prior to system installation.



901.2.1 Statement of compliance.

- Before requesting final approval of the installation, where required by the fire code official, the installing contractor shall furnish a written statement to the fire code official that the subject fire protection system has been installed in accordance with approved plans and has been tested in accordance with the manufacturer's specifications and the appropriate installation standard.
- Any deviations from the design standards shall be noted and the approvals for such deviations shall be attached to the written statement.



901.4 Installation.

- *Fire protection systems* shall be maintained in accordance with the original installation standards for that system.
- Required systems shall be extended, altered or augmented as necessary to maintain and continue protection where the building is altered, remodeled or added to.
- *Alterations to fire protection systems* shall be done in accordance with applicable standards.



901.4.2 Non-required fire protection systems.

- A fire protection system or a portion of a fire protection system not required by the code or the IBC shall be allowed to be furnished for partial or complete protection provided such installed system meets the applicable requirements of the code and the IBC.



901.4.3 Fire areas.

- Where buildings are divided into fire areas so as not to exceed the limits established for requiring a fire protection system in accordance with this chapter, such fire areas shall be separated by fire barriers constructed in accordance with Section 707 of the International Building Code.

FIRE AREA is defined as "The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls or horizontal assemblies of a building. Areas of the building not provided with surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor next above".



901.4.5 Appearance of equipment.

- Any device that has the physical appearance of life safety or fire protection equipment but that does not perform that life safety or fire protection function shall be prohibited.



901.4.6 Pump and Riser Room Size.

- Fire pump and automatic sprinkler system riser rooms shall be designed with adequate space for all equipment necessary for the installation as defined by the manufacturer with sufficient working room around the stationary equipment.
- Clearances around equipment to elements of permanent construction, including other installed equipment and appliances, shall be sufficient to allow inspection, service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire resistance-rated assembly.



901.4.6 Pump and Riser Room Size.

- Fire pump and automatic sprinkler riser rooms shall be provided with a door(s) and unobstructed passageway large enough to allow removal of the largest piece of equipment.
- Change: Requires rooms for fire protection equipment to be adequately sized



901.5.1 Occupancy.

- It is unlawful to occupy any portion of a building or structure **until** the required fire detection, alarm and suppression systems have been tested and approved.

TABLE 901.6.1
FIRE PROTECTION SYSTEM MAINTENANCE STANDARDS

SYSTEM	STANDARD
Portable fire extinguishers	NFPA 10
Carbon dioxide fire-extinguishing system	NFPA 12
Halon 1301 fire-extinguishing systems	NFPA 12A
Dry-chemical extinguishing systems	NFPA 17
Wet-chemical extinguishing systems	NFPA 17A
Water-based fire protection systems	NFPA 25
Fire alarm systems	NFPA 72
Smoke and heat vents	NFPA 204
Water-mist systems	NFPA 750
Clean-agent extinguishing systems	NFPA 2001

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901.6.2 Records.

- Records of all system inspections, tests and maintenance required by the referenced standards **shall be maintained**.
- 901.6.2.1 Records information. Initial records shall include the name of the installation contractor, type of components installed, manufacturer of the components, location and number of components installed per floor.
- Records shall also include the manufacturers' operation and maintenance instruction manuals. Such records shall be maintained for the life of the installation.

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901.7 Systems out of service.

- The fire department and the fire code official shall be notified immediately. Evacuate or Fire Watch?
- 901.7.1 Impairment coordinator. Bldg Owner Responsibility.
- 901.7.2 Tag required. Denotes what system, component or part thereof is out of service.
- 901.7.3 Placement of tag. The fire code official shall specify where the tag is to be placed.
- 901.7.4 Preplanned impairment programs. 8 listed procedures shall be complied with.
- 901.7.6 Restoring systems to service. Coordinator verifies 5 item list is completed.



901.8 Removal of or tampering with equipment.

- Unlawful to remove, tamper with or disturb any fire hydrant, fire detection and alarm system, fire suppression system or other fire appliance required by code except for the purpose of extinguishing fire, training purposes, recharging or making necessary repairs or where approved by the fire code official.
- 901.8.1 Removal of or tampering with appurtenances. Locks, gates, doors, barricades, chains, enclosures, signs, tags or seals that have been installed by or at the direction of the fire code official shall not be removed, unlocked, destroyed, tampered with or otherwise vandalized in any manner.



901.9 Discontinuation or Change of Service.

- For fire alarm systems required to be monitored by this code, notice shall be made to the fire code official whenever alarm monitoring services are terminated. Notice shall be made in writing to the fire code official by the monitoring service provider being terminated.
- Change: Requires that the fire code official be notified when required monitoring services are terminated.



903.2.2 Ambulatory Care Facilities.

- An automatic sprinkler system shall be installed throughout all the entire floor containing an ambulatory care facility and all floors between the ambulatory care facility and the level of exit discharge serving such a facility, when either of the following conditions exist at any time:
 - 1. Four or more care recipients are incapable of self preservation.
 - 2. One or more care recipients that are incapable of self preservation are located at other than the level of exit discharge serving such a facility.



903.2.2 Ambulatory Care Facilities. (cont.)

- In buildings where care is provided on levels other than the level of exit discharge, an automatic sprinkler system shall be installed on the entire floor where care is provided as well as all floors below, and all floors between the level of care and the closest level of exit discharge, including the level of exit discharge.
- Change: Automatic sprinkler requirements for ambulatory care facilities revised to cover entire floor of the facility and all intervening floors to the level of exit discharge.



903.2.7 Group M.

- An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:
 - 1. Where a Group M fire area exceeds 12,000 square feet;
 - 2. Where a Group M fire area is located more than three stories above grade plane; or
 - 3. Where the combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet; or
 - 4. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet.
- Change: Automatic sprinklers required in occupancies storing, selling or manufacturing upholstered furniture.



903.2.11.1.3 Basements.

- Where any portion of a basement is located more than 75 feet from openings required by Section 903.2.11.1, or where walls, partitions or other obstructions are installed that restrict the application of water from hose streams, the basement shall be equipped throughout with an approved automatic sprinkler system.
- Change: Basement sprinkler provisions modified.



IBC 713.13 Waste and linen chutes and incinerator rooms.

- Waste and linen chutes shall comply with the provisions of NFPA 82, Chapter 5 and, shall meet the requirements of Sections 713.13.1 through 713.13.6.
- Incinerator rooms shall meet the provisions of Sections 713.13.4 through 713.13.5.
- **Exception:** Chutes serving and contained within a single dwelling unit.



IBC 713.13.4 Chute discharge room.

- Waste or linen chutes shall discharge into an enclosed room separated by *fire barriers with a fire-resistance rating not less than the required fire rating of the shaft enclosure* and constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
- Openings into the discharge room from the remainder of the building shall be protected by opening protectives having a *fire protection rating equal to the protection required* for the shaft enclosure.
- Doors shall be self- or automatic closing upon the detection of smoke in accordance with Section 716.5.9.3. Waste chutes shall not terminate in an incinerator room.
- Waste and linen rooms that are not provided with chutes need only comply with Table 509.



904.1.1 Certification of Service Personnel for Fire Extinguishing Equipment & 906.3.

- Service personnel shall be certified to use all fire extinguishing equipment and shall possess a valid certification for the use of all other approved fire extinguishing equipment.
- 906.3 Certification shall be required for personnel conducting maintenance on fire extinguishing equipment, including the type of work performed.
- Change: Personnel shall be certified to use all fire extinguishing equipment and shall possess a valid certification for the use of all other approved fire extinguishing equipment.



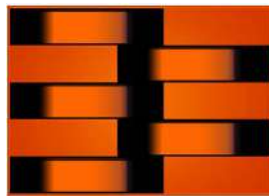
904.3.2 Actuation.

- Automatic fire-extinguishing systems shall be automatically activated and provided with a manual means of activation in accordance with Section 904.11.1.
- Where more than one hazard could be simultaneously involved in fire due to their proximity, all hazards shall be protected by a single system designed to protect all hazards that could become involved.
- Exception: Multiple systems may be installed if they are designed to operate simultaneously.
- Change: When two or more systems protect a hazard, they must operate simultaneously.



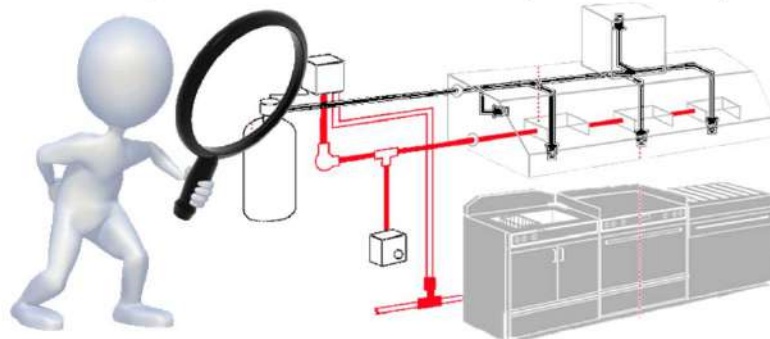
904.3.3 System interlocking.

- Automatic equipment interlocks with fuel shutoffs, ventilation controls, door closers, window shutters, conveyor openings, smoke and heat vents and other features necessary for proper operation of the fire-extinguishing system shall be provided as required by the design and installation standard utilized for the hazard.



904.4 Inspection and testing.

- Automatic fire-extinguishing systems shall be inspected and tested in accordance with the provisions of this section prior to acceptance.

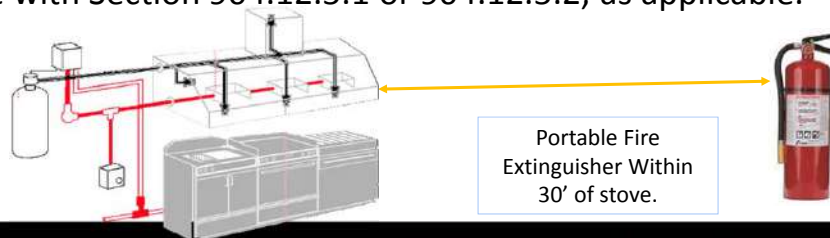


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904.12.5 Portable fire extinguishers for commercial cooking equipment.

- Portable fire extinguishers shall be provided within a 30-foot distance of travel from commercial-type cooking equipment.
- Cooking equipment involving solid fuels or vegetable or animal oils and fats shall be protected by a Class K rated portable extinguisher in accordance with Section 904.12.5.1 or 904.12.5.2, as applicable.



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904.12.6.2 Extinguishing system service.

- Automatic fire-extinguishing systems shall be serviced at least every six months and after activation of the system.
- Inspection shall be by qualified individuals, and a certificate of inspection shall be forwarded to the fire code official upon completion.



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904.13 Domestic cooking systems in Group I-2 Condition 1. (new is 2015)

- Where cooking facilities are installed in accordance with Section 407.2.6 of the code, the domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment.
- Pre-engineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application.
- The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.



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905.4 Location of Class I Standpipe Hose Connections.

- Class I standpipe hose connections shall be provided in all of the following locations:
- Items 1 through 3 are unchanged
- 4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an exit passageway or exit corridor to the mall. In open mall buildings,
- adjacent to each public entrance to the mall at the perimeter line and adjacent to each entrance from an exit passageway or exit corridor to the mall.
- 5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), a hose connection shall be located to serve the roof or at the highest landing of a stairway with stair access to the roof provided in accordance with Section 1009.16
- Item 6 is unchanged
- Change: Requirements for Class I standpipe locations clarified for malls.



905.5 Location of Class II standpipe hose connections.

- Class II standpipe hose connections shall be accessible and shall be located so that all portions of the building are within 30 feet of a nozzle attached to 100 feet of hose.



What's Wrong With This Picture?



906.1 Where Required.

- Portable fire extinguishers shall be installed in the following locations (Items 2 through 6 remain unchanged).
- 1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.
- Exception: In Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.
- Change: Portable fire extinguishers required in most occupancies.



906.2 General requirements.

- Portable fire extinguishers shall be selected, installed and maintained in accordance with this section and NFPA 10.
- Be installed in a conspicuous place along the normal path of travel.
- Not obstructed from view.
- Signs placed in close proximity.

LOCATIONS FOR FIRE EXTINGUISHERS	
	Near an exit
	Visible location
	High on a wall
	Out of children's reach
	Away from heat sources
	No more than 23 metres (75 feet) away from a Class A (ordinary combustibles) hazard
	No more than 15 metres (50 feet) away from a Class B (flammable liquids) hazard
	Kitchen
	Laundry room
	Workshop
	Garage
	Top of Basement Stairwell

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TABLE 906.3(1)
FIRE EXTINGUISHERS FOR CLASS A FIRE HAZARDS

	LIGHT (Low) HAZARD OCCUPANCY	ORDINARY (Moderate) HAZARD OCCUPANCY	EXTRA (High) HAZARD OCCUPANCY
Minimum rated single extinguisher	2-A ^c	2-A	4-A ^a
Maximum floor area per unit of A	3,000 square feet	1,500 square feet	1,000 square feet
Maximum floor area for extinguisher ^b	11,250 square feet	11,250 square feet	11,250 square feet
Maximum distance of travel to extinguisher	75 feet	75 feet	75 feet

TABLE 906.3(2)
FLAMMABLE OR COMBUSTIBLE LIQUIDS WITH
DEPTHS OF LESS THAN OR EQUAL TO 0.25-INCH^a

TYPE OF HAZARD	BASIC MINIMUM EXTINGUISHER RATING	MAXIMUM DISTANCE OF TRAVEL TO EXTINGUISHERS (feet)
Light (Low)	5-B	30
	10-B	50
Ordinary (Moderate)	10-B	30
	20-B	50
Extra (High)	40-B	30
	80-B	50

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906.5 Conspicuous location.

- Portable fire extinguishers shall be located in conspicuous locations where they will be readily accessible and immediately available for use.
- These locations shall be along normal paths of travel, unless the fire code official determines that the hazard posed indicates the need for placement away from normal paths of travel.



shall not be locked

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SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

- 907.1.1 Construction documents.
- Construction documents for fire alarm systems shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code, the International Building Code and relevant laws, ordinances, rules and regulations, as determined by the fire code official.



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907.1.2 Fire alarm shop drawings.

- Shop drawings for fire alarm systems shall be submitted for review and approval **prior to** system installation, and shall include, but not be limited to, all of the following: 13 items including....
- A floor plan that indicates the use of all rooms.
- Locations of alarm-initiating devices.
- Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.
- Location of fire alarm control unit, transponders and notification power supplies.
- Annunciators.
- Power connection.
- Manufacturers' data sheets indicating model numbers and listing information for equipment, devices and materials.
- Details of ceiling height and construction.
- The interface of fire safety control functions.



907.2.1 Group A.

- A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies where the occupant load due to the assembly occupancy is 300 or more.
- Group A occupancies not separated from one another in accordance with Section 707.3.9 of the IBC shall be considered as a single occupancy for the purposes of applying this section.
- Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.
 - Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.



907.2.1.2 Emergency Voice/Alarm Communication Captions & 907.5.2.2.4.

- Stadiums, arenas and grandstands required to caption audible public announcements shall be in accordance with Section **907.5.2.2.4.**



907.5.2.2.4 Emergency Voice/Alarm Communication Captions.

- Where stadiums, arenas and grandstands are required to caption audible public announcements in accordance with Section 1108.2.7.2 of the International Building Code, the emergency/voice alarm communication system shall also be captioned.
- Prerecorded or live emergency captions shall be from an approved location constantly attended by personnel trained to respond to an emergency.
- Change: Mass notification fire alarm signals require captioned messages in large assemblies.



907.2.3 Group E.

- A manual fire alarm system that activates initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of
- Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.
- 1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 30 or less.
- 2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
 - 2.1. Interior corridors are protected by smoke detectors.



907.2.3 Group E.

- 2.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
- 2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
- 3. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with
- Section 903.3.1.1, the emergency voice/alarm communication system will activate on sprinkler water flow and manual activation is provided from a normally occupied location.
- Change: Voice evacuation system required in Use Group E occupancies.



907.2.20 Covered and open mall buildings.

- Where the total floor area exceeds 50,000 square feet within either a covered mall building or within the perimeter line of an open mall building, an emergency voice/alarm communication system shall be provided.
- Emergency voice/alarm communication systems serving a mall, required or otherwise, shall be accessible to the fire department.
- The system shall be provided in accordance with Section 907.5.2.2.



IBC Section 402.1.2 (2015)

- **Open mall building perimeter line**
 - Requires the establishment of a line around the perimeter of areas which will be considered part of the open mall and areas which are not, since open malls are usually a collection of structures versus one structure.
 - Establishment of this line is essential to the application of Section 402.



907.4.2 Manual fire alarm boxes.

- Manual fire alarm boxes shall be located not more than 5 feet from the entrance to each exit.
- Located so that the exit access travel distance to the nearest box does not exceed 200 feet.
- Height of the manual fire alarm boxes shall be not less than 42", not more than 48".
- Manual fire alarm boxes shall be red in color.
- Sign shall be installed adjacent to each manual fire alarm box that reads: WHEN ALARM SOUNDS— CALL FIRE DEPARTMENT.
- Manual fire alarm boxes shall be accessible, unobstructed, unobscured and visible at all times.



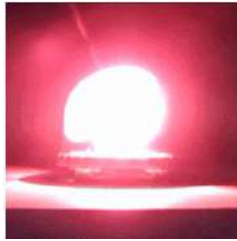
907.5.2.1 Audible alarms, Exceptions:

- 1. Audible alarm notification appliances are not required in critical care areas of Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.
- 2. A visible alarm notification appliance installed in a nurses' control station or other continuously attended staff location in a Group I-2 Condition 2 suite shall be an acceptable alternative to the installation of audible alarm notification appliances throughout the suite in Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.



907.5.2.3 Visible alarms, Exceptions (2015):

- 4. Visual alarm notification appliances are not required in critical care areas of Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.



SECTION 909 SMOKE CONTROL SYSTEMS

- 909.3 Special inspection and test requirements. In addition to the ordinary inspection and test requirements that buildings, structures and parts thereof are required to undergo, smoke control systems subject to the provisions of Section 909 shall undergo special inspections and tests sufficient to verify the proper commissioning of the smoke control design in its final installed condition.



IBC Section 1705.18 Testing for smoke control.

- Smoke control systems shall be tested by a qualified inspector.
- 1705.18.1 Testing scope.** The test shall be as follows:
 - During erection of ductwork and prior to final testing and recording of device location.
 - Prior to occupancy and after sufficient time for the purposes of leakage difference testing, flow measurement and pressure and velocity measurement.
- 1705.18.2 Qualifications.** *Approved agencies for smoke control testing shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.*



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909.11 Standby power.

- Smoke control systems **shall be** provided with standby power in accordance with Section 604.
- 909.11.1 Equipment room.** The standby power source and its transfer switches shall be in a room separate from the normal power transformers and switch gears and ventilated directly to and from the exterior.
- The room shall be enclosed with not less than 1-hour fire barriers constructed in accordance with Section 707 of the IBC or horizontal assemblies constructed in accordance with Section 711 of the IBC, or both.
- The Standby power shall be automatic and transfer in 60 seconds.



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**TABLE 3206.2
GENERAL FIRE PROTECTION AND LIFE SAFETY REQUIREMENTS**

COMMODITY CLASS	SIZE OF HIGH-PILED STORAGE AREA ^a (square feet) (see Sections 3206.2 and 3206.4)	ALL STORAGE AREAS (See Sections 3206, 3207 and 3208) ^b				SOLID-PILED STORAGE, SHELF STORAGE AND PALLETIZED STORAGE (see Section 3207.3)		
		Automatic fire-extinguishing system (see Section 3206.4)	Fire detection system (see Section 3206.5)	Building access (see Section 3206.6)	Smoke and heat removal (see Section 3206.7)	Maximum pile dimension ^c (feet)	Maximum permissible storage height ^d (feet)	Maximum pile volume (cubic feet)
SECTION 910.2 SMC <ul style="list-style-type: none"> 910.2 91 91 HIGH-PILED COMMODITIES, including pallets, in racks or on the floor, official, high-pile plastics, flammable liquids, gases, and solids.	I-IV	0-500	Not Required ^e	Not Required ^e	Not Required ^e	Not Required	Not Required	Not Required
		501-2,500	Not Required ^e	Yes ^f	Not Required ^e	100	40	100,000
		2,501-12,000 Public accessible	Yes	Not Required ^e	Not Required ^e	100	40	400,000
		2,501-12,000 Nonpublic accessible (Option 1)	Yes	Not Required ^e	Not Required ^e	100	40	400,000
		2,501-12,000 Nonpublic accessible (Option 2)	Not Required ^e	Yes	Yes ^f	100	30 ^g	200,000
		12,001-20,000	Yes	Not Required ^e	Yes ^f	100	40	400,000
		20,001-500,000	Yes	Not Required ^e	Yes ^f	100	40	400,000
		Greater than 500,000 ^h	Yes	Not Required ^e	Yes ^f	100	40	400,000
	High hazard	0-500	Not Required ^e	Not Required ^e	Not Required ^e	50	Not Required	Not Required
		501-2,500 Public accessible	Yes	Not Required ^e	Not Required ^e	50	30	75,000
		501-2,500 Nonpublic accessible (Option 1)	Yes	Not Required ^e	Not Required ^e	50	30	75,000
		501-2,500 Nonpublic accessible (Option 2)	Not Required ^e	Yes	Yes ^f	50	20	50,000
		2,501-300,000	Yes	Not Required ^e	Yes ^f	50	30	75,000
		300,001-500,000 ^h	Yes	Not Required ^e	Yes ^f	50	30	75,000
		Greater than 500,000 ^h	Yes	Not Required ^e	Yes ^f	50	30	75,000

^aFor commodities stored in racks or on the floor, the height of the commodity shall be measured from the floor to the top of the commodity. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack.

^bFor commodities stored in racks or on the floor, the height of the commodity shall be measured from the floor to the top of the commodity. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack.

^cFor commodities stored in racks or on the floor, the height of the commodity shall be measured from the floor to the top of the commodity. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack.

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^fFor commodities stored in racks or on the floor, the height of the commodity shall be measured from the floor to the top of the commodity. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack.

^gFor commodities stored in racks or on the floor, the height of the commodity shall be measured from the floor to the top of the commodity. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack.

^hFor commodities stored in racks or on the floor, the height of the commodity shall be measured from the floor to the top of the commodity. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack. For commodities stored in racks, the height of the commodity shall be measured from the floor to the top of the rack.

SECTION 912 FIRE DEPARTMENT CONNECTIONS

- 912.1 Installation. Fire department connections shall be installed in accordance with the NFPA standard applicable to the system design and shall comply with Sections 912.2 through 912.7.
- 912.2 Location. With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus.
- The location of fire department connections shall be approved by the fire chief.





SECTION 914 FIRE PROTECTION BASED ON SPECIAL DETAILED REQMT - USE AND OCCUPANCY

- 914.2 Covered and open mall buildings, except separated open parking garages.
- 914.3 High-rise buildings. Over 420' requires two risers.
- 914.4 Atriums, except adjacent areas that are separated and ceilings over 55' above the atrium.
- 914.5 Underground buildings.
- 914.6 Stages, three exceptions apply.
- 914.7 Special amusement buildings, except less than 1000 sq ft and 50 occupants.
- 914.8 Aircraft-related occupancies.
- 914.9 Application of flammable finishes.
- 914.10 Drying rooms.
- 914.11 Ambulatory care facilities.



NEW IN 2015 IFC – SECTION 915 CARBON MONOXIDE DETECTION

BEEP!



BEEP!

- 915.2.3 Group E occupancies.
- Carbon monoxide detection shall be installed in classrooms in Group E occupancies.
- Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.
- Exception: Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 30 or less.

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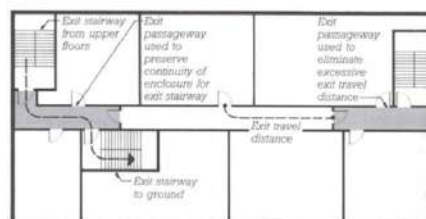
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CHAPTER 10 MEANS OF EGRESS

- 1001.2 Minimum requirements. It shall be unlawful to alter a building or structure in a manner that will reduce the number of exits or the capacity of the means of egress to less than required by this code.

Exit Passageway



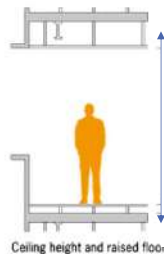
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1003.2 Ceiling height.

- Minimum ceiling heights. Occupiable spaces, habitable spaces and corridors shall have a ceiling height of not less than 7 feet 6 inches.
- Under the IBC Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall have a ceiling height of not less than 7 feet.



Ceilings of dwelling units and sleeping units within residential occupancies in accordance with Section 1208.2 of the International Building Code.

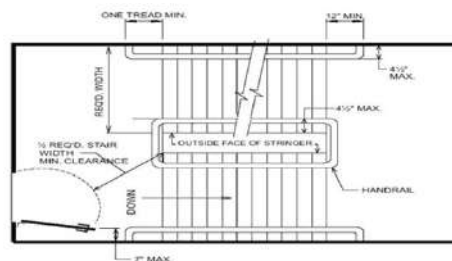
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1003.3.3 Horizontal projections.

- Objects with leading edges more than 27 inches and not more than 80 inches above the floor shall not project horizontally more than 4 inches into the circulation path.
- Exception: Handrails are permitted to protrude 4 1/2 inches from the wall.



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1003.4 Floor surface.

- Walking surfaces of the means of egress shall have a slip-resistant surface and be securely attached.



Courtesy slipalert.com

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1003.5 Elevation change.

- Where change of elevation exists in the means of egress, sloped ramps complying with Section 1003.5.2 shall be provided.
- Where the slope of the ramp exceeds 1:12, the ramp shall be equipped with handrails.
- Where the difference in elevation between the ramp and adjacent floor or landing is more than 1/4 inch (6 mm), the ramp shall be finished with materials that contrast with the adjacent floor or landing.



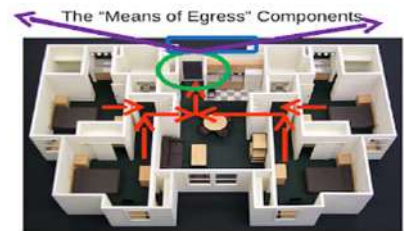
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1003.6 Means of egress continuity.

- The path of egress travel along a means of egress shall not be interrupted by a building element other than a means of egress component as specified in this chapter.
- Obstructions shall not be placed in the minimum width or required capacity of a means of egress component except projections permitted by this chapter.
- The minimum width or required capacity of a means of egress system shall not be diminished along the path of egress travel.



1004.1.1 & 1004.1.2 Areas Without Fixed Seating.

- The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.1.2.
- For areas without fixed seating, the occupant load shall not be less than that number determined by dividing the floor area under consideration by the occupant load factor assigned to the function of the space as set forth in Table 1004.1.2.
- Where an intended function is not listed in Table 1004.1.2, the fire code official shall establish a function based on a listed function that most nearly resembles the intended function.



1004.1.1 & 1004.1.2 Areas Without Fixed Seating.

- Exception: Where approved by the fire code official, the actual number of occupants for whom each occupied space, floor or building is designed, although less than those determined by calculation, shall be permitted to be used in the determination of the design occupant load.
- Change: Occupant load factors added for museums and exhibit halls that are reflective of the actual use of the space.

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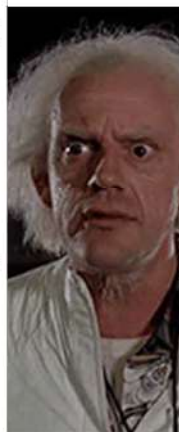
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WHO SETS THE OCCUPANT LOAD???

**TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR*
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Assembly with fixed seats	See Section 1004.4
Assembly without fixed seats	
Concentrated (chairs only – not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	100 gross

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**TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

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Assembly without fixed seats	
Concentrated (chairs only—not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	100 gross

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1004.5 Outdoor areas.

- Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, means of egress requirements for the building shall be based on the sum of the occupant loads of the building plus the outdoor areas.
- Where occupants from accessory areas egress through a primary space, the calculated occupant load for the primary space shall include the total occupant load of the primary space plus the number of occupants egressing through it from the accessory area.

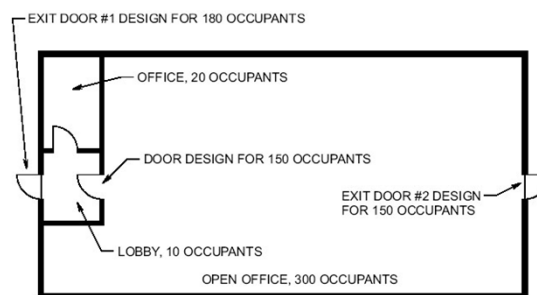
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1004.6 Multiple occupancies.

- Where a means of egress of the building is used by two or more occupancies, the occupant load of each portion of the building shall be based on the sum of the occupant loads of the occupancies.



EXIT DOOR #1 DESIGN:

# OF OCCUPANTS FROM OPEN OFFICE	=	150
# OF OCCUPANTS FROM BUILDING OFFICE	=	20
# OF OCCUPANTS FROM LOBBY	=	10
TOTAL # OF OCCUPANTS (BY COMBINATION)	=	180

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1005.1 General.

- All portions of the means of egress system shall be sized in accordance with this section.
- Exception: Means of egress complying with Section 1028.
- 1005.2 Minimum Width Based on Component. The minimum width, in inches, of any means of egress components shall not be less than that specified for such component, elsewhere in this code.
- 1005.3 Required Capacity Based on Occupant Load. The required capacity, in inches, of the means of egress for any room, area, space or story shall not be less than that determined in accordance with the following:



1005.1 General.

- 1005.3.2 Other Egress Components. The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inches (5.08 mm) per occupant.
- Exception: For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress components other than stairways shall be calculated multiplying the occupant load served by such component by a means of egress capacity factor of 0.15 inches (3.8 mm) per occupant in buildings equipped throughout with and automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
- Change: Exit width/capacity requirements re-arranged and reduced exit width factors established for sprinkler protected buildings with emergency voice communication system.



1005.3.1 Stairways.

- The capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairway by a means of egress capacity factor of 0.3 inches per occupant. Where stairways serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the stairways serving that story.
- Exception: For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress stairways shall be calculated multiplying the occupant load served by such stairway by a means of egress capacity factor of 0.2 inches per occupant in buildings equipped throughout with and automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

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SECTION 1007.3 STAIRWAYS

- In order to be considered part of an accessible means of egress, a stairway between stories shall have a clear width of 48 inches minimum between handrails.
- Need Area of Refuge or shall be accessed from an Area of Refuge.
- Six exceptions apply.



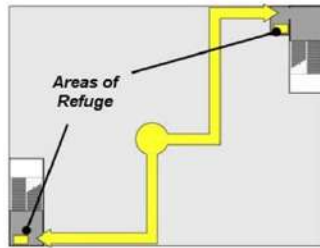
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1007.2 Continuity and components.

- Each required accessible means of egress shall be continuous to a public way and shall consist of one or more of the following components: 9. Areas of refuge complying with Section 1007.6.



- 1007.6.1 Travel distance shall not exceed the exit access travel distance.
- 1007.6.2 Stairway or elevator access shall have direct access to a stairway or an elevator.
- 1007.6.3 Size. Each area of refuge shall be sized to accommodate one wheelchair space of 30"x48" for each 200 occupants or portion thereof.
- 1007.6.4 Separation by a smoke barrier.
- 1007.6.5 Two-way communication shall be provided with a two-way communication system.
- 1007.7 Exterior Area of Rescue Assistance has similar requirements.

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Instructions
The IBC requires posted instructions on use of the area under emergency conditions next to the communication system and specifies required content. These instructions must meet requirements for visual characters in the ADA Standards (§216.4.2, §703.5).

Two-Way Emergency Communication System
Devices must include audible and visual signals and connect to a central control point (and to a public telephone system if the central control point is not constantly attended) under the IBC. Their location must be approved by the fire department. Operable parts are subject to the ADA Standards (§309).

Separation by Smoke Barrier/Fire Rating

Required Egress Width

Wheelchair Spaces
The IBC requires 1 wheelchair space (30" min. by 48" min.) for every 200 occupants or portion thereof served by the area of refuge. Spaces cannot reduce the required egress width and must be entered directly from an accessible route or one adjacent wheelchair space.

Stairway Width
The IBC requires stairs serving areas of refuge to have a clear width of 48" min. between handrails to accommodate assisted evacuation.

Openness
Area must be at least 50% open to minimize accumulation of smoke or toxic gases.

Fire-rated Separation
One hour min. fire-rated separation within 10' (horizontal and vertical) of the exterior area of assisted rescue (3/4 hour rating for opening protectives within this area).

Exterior

Exterior Exit Stairway
48" min. clear width between handrails

Wheelchair Space
1 space (30" min. by 48" min.) for every 200 occupants or portion thereof served by the exterior area for assisted rescue. Spaces cannot reduce the required egress width and must be entered directly from an accessible route or one adjacent wheelchair space.

Identification
Visual and tactile sign: "AREA OF REFUGE" with International Symbol of Accessibility located at door (interior side) leading to exterior area for assisted rescue.

AREA OF REFUGE

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1008.1.1 Size of doors.

- The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear width of 32”.
- Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees.
- Where this section requires a minimum clear width of 32” and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32”.
- The maximum width of a swinging door leaf shall be 48” nominal.
- Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41 ½”.
- The height of door openings shall be not less than 80”.
- 8 Exceptions apply.



1008.1.2 Door Swing.

- Egress doors shall be of the pivoted or side-hinged swinging.
- 9 Exceptions including:
 - Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
 - Group I-3 occupancies used as a place of detention.
 - Critical or intensive care patient rooms within suites of health care facilities.
 - Power-operated doors in accordance with Section 1008.1.4.2.
 - Doors serving a bathroom within an individual sleeping unit in Group R-1.
 - In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a means of egress from spaces with an occupant load of 10 or less.
- Doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons or a Group H occupancy.



1008.1.3 Door opening force.

- The force for pushing or pulling open interior swinging egress doors, other than fire doors, shall not exceed 5 pounds.
- For other swinging doors, as well as sliding and folding doors, the door latch shall release when subjected to a 15-pound force.
- The door shall be set in motion when subjected to a 30-pound force.
- The door shall swing to a full-open position when subjected to a 15-pound force.



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1008.1.3.1 Location of applied forces.

- Forces shall be applied to the latch side of the door.



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as seen on
failblog.org

MAKE GIFS AT GIFSOUP.COM

Thresholds shall not exceed $\frac{3}{4}$ " on residential, $\frac{1}{2}$ " on commercial.

Thresholds shall not exceed $\frac{3}{4}$ " on residential, $\frac{1}{2}$ " on commercial.

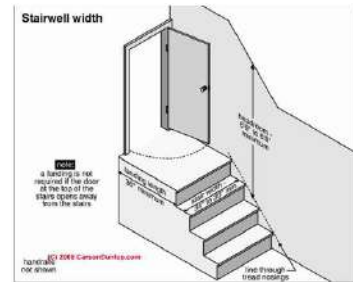


An exit door must be side-hinged.

Max. 36" in direction of travel in Groups R-3 and U and within individual units of Group R-2.

1008.1.6 Landings at doors.

- Landings are:
 - Landings not less than the width of the stairway or the door, whichever is greater.
 - Doors shall not reduce a required dimension by more than 7".
 - Occupant load of 50 or more, doors shall not reduce the landing to less than 1/2 its required width.
 - Length measured in the direction of travel of not less than 44".



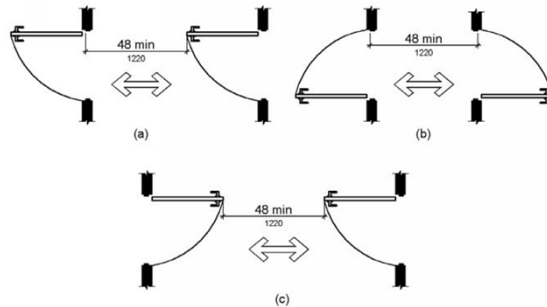
1008.1.5 Floor elevation.

- Landings are:
 - Required on each side of each exterior door
 - landing shall be at the same elevation on each side of the door.
 - Allowed a max. slope of 2%
- **Exception:** In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to 7 3/4" in height (meets 3 conditions).



1008.1.8 Door arrangement.

- Space between two doors in a series shall be 48" minimum plus the width of a door swinging into the space.
- Doors in a series shall swing either in the same direction or away from the space between the doors.



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1008.1.9.3 Locks and latches.

- Locks and latches shall be permitted:
 - In buildings in which the occupant load is 300 or less,
 - Groups B, F, M and occupancies with an occupant load of 30 or less, and
 - the main door of a building with an occupant load of 30 or less, with key-operated locking devices
 - 2.2. A readily accessible sign shall be posted on or adjacent to the door stating: **THIS DOOR IS OCCUPIED.**
 - The sign shall be illuminated.



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1008.1.9.4 Bolt locks.

- Manually operated flush bolts or surface bolts are not permitted.
- Five exceptions including;
 - 1. On doors not required for egress in individual dwelling units or sleeping units.
 - 2. Where a pair of doors serves a storage or equipment room, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf.



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1008.1.9.7 Delayed egress & IBC 1008.1.9.7

- *Approved, listed*, delayed egress locks shall be permitted to be installed on doors serving any occupancy *except* Groups Assembly, Education and High-Hazard occupancies in buildings that are equipped with an *automatic sprinkler system* or an *approved* automatic smoke or heat detection system.
- A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit*.
- Doors unlock upon actuation of the *automatic sprinkler system* or automatic fire detection system
- Doors unlock upon loss of power controlling the lock or lock mechanism
- Door locks shall have the capability of being unlocked by a signal from the fire command center.

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1008.1.9.7 Delayed egress & IBC 1008.1.9.7

- A delayed egress lock will prevent egress for 15 seconds (or 30 seconds when approved by the AHJ) when initiated by a 15-pound force
- Initiation shall activate an audible signal in the vicinity of the door
- Once the door has been released relocking shall be by manual means only
- A sign shall be provided on the door located above and within 12" of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30 w/exception] SECONDS.
- Emergency lighting shall be provided at the door



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1008.1.10 Panic and fire exit hardware.

- Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.
- Exception: A main exit of a Group A occupancy in compliance with Section 1008.1.9.3, Item 2.
- Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet wide, and that contain over-current devices, switching devices or control devices with exit or exit access doors, shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel.



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SECTION 1009 STAIRWAYS

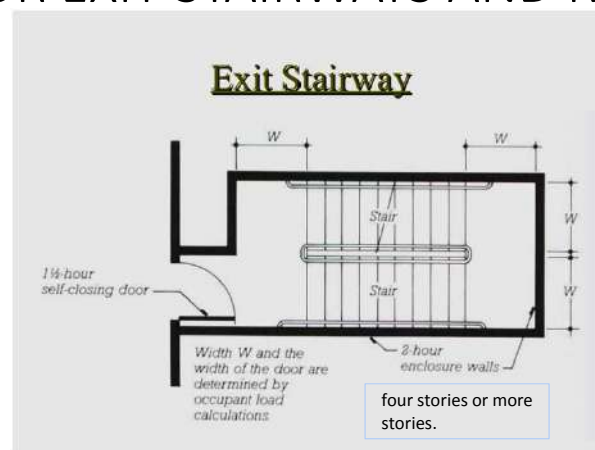
- 1009.1 General. Stairways serving occupied portions of a building shall comply with the requirements of this section.
- 1009.2 Interior Exit Stairways. Interior exit stairways shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an exit passageway conforming to the requirements of Section 1023, except as permitted in Section 1027.1.
- 1009.2.1 Where Required. Interior exit stairways shall be included, as necessary, to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance.
- 1009.2.2 Enclosure. All interior exit stairways shall be enclosed in accordance with the provisions of Section 1022.

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SECTION 1009 INTERIOR EXIT STAIRWAYS AND RAMPS



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SECTION 1009 STAIRWAYS

- 1009.3 Exit Access Stairways. Floor openings between stories created by exit access stairways shall be enclosed.
- Exceptions:
 1. In other than Group I-2 and I-3 occupancies, exit access stairways that serve, or atmospherically communicate between, only two stories, are not required to be enclosed.
 2. Exit access stairways serving and contained within a single residential dwelling unit or sleeping unit in Group R-1, R-2 or R-3 occupancies are not required to be enclosed.
 3. In buildings with only Group B or M occupancies, exit access stairway openings are not required to be enclosed provided that the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the area of the floor opening between stories does not exceed twice the horizontal projected area of the exit access stairway, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.



SECTION 1009 STAIRWAYS

- 4. In other than Groups B and M occupancies, exit access stairway openings are not required to be enclosed provided that the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the floor opening does not connect more than four stories, the area of the floor opening between stories does not exceed twice the horizontal projected area of the exit access stairway, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.
- 5. Exit access stairways within an atrium complying with the provisions of Section 404 are not required to be enclosed.
- 6. Exit access stairways and ramps in open parking garages that serve only the parking garage are not required to be enclosed.



SECTION 1009 STAIRWAYS

- 7. Stairways serving outdoor facilities where all portions of the means of egress are essentially open to the outside are not required to be enclosed.
- 8. Exit access stairways serving stages, platforms and technical production areas in accordance with Sections 410.6.2 are not required to be enclosed.
- 9. Stairways are permitted to be open between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.
- 10. In Group I-3 occupancies, exit access stairways constructed in accordance with Section 408.5 are not required to be enclosed.
- Change: Coordinates requirements for when an unenclosed stairway can be used within the means of egress.



SECTION 1011 EXIT SIGNS

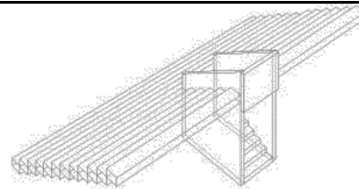
- Exits and exit access doors shall be marked by an approved exit sign readily visible from any direction of egress travel.
- The path of egress travel to exits and within exits shall be marked by readily visible exit signs to clearly indicate the direction of egress travel in cases where the exit or the path of egress travel is not immediately visible to the occupants.
- Intervening means of egress doors within exits shall be marked by exit signs.
- Exit sign placement shall be such that no point in an exit access corridor or exit passageway is more than 100 feet or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign.



EXIT SIGN PLACEMENT ISSUES!!!



Exit signs exceptions:



- 1. Exit signs are not required in rooms or areas that require only one exit or exit access.
- 2. Main exterior exit doors or gates that are obviously and clearly identifiable as exits need not have exit signs where approved by the fire code official.
- 3. Exit signs are not required in occupancies in Group U and individual sleeping units or dwelling units in Group R-1, R-2 or R-3.
- 4. Exit signs are not required in dayrooms, sleeping rooms or dormitories in occupancies in Group I-3.
- 5. In occupancies in Groups A-4 and A-5, exit signs are not required on the seating side of vomitories or openings into seating areas where exit signs are provided in the concourse that are readily apparent from the vomitories. Egress lighting is provided to identify each vomitory or opening within the seating area in an emergency.



SECTION 1011 EXIT SIGNS

- Exit signs shall be internally or externally illuminated.
- Internally illuminated exit signs electrically powered, self-luminous and photoluminescent exit signs shall be listed and labeled in accordance with UL 924.
- Externally illuminated exit signs plainly legible letters not less than 6" high with the principal strokes of the letters not less than $\frac{3}{4}$ " wide.
- The word "EXIT" shall be in high contrast with the background.



1011 Exit signs

- The face of an exit sign illuminated from an external source shall have an intensity of not less than 5 foot-candles.
- Exit signs shall be illuminated at all times.
- Illumination shall be for a duration of not less than 90 minutes in case of primary power loss.
- The illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator.



SECTION 1011



1011.2 Floor-level Exit Signs in Group R-1.

- Where exit signs are required in Group R-1 occupancies by Section 1011.1, additional low-level exit signs shall be provided in all areas serving guest rooms in Group R-1 occupancies and shall comply with Section 1011.5 The bottom of the sign shall be not less than 10 inches nor more than 12 inches above the floor level. The sign shall be flush mounted to the door or wall. Where mounted on the wall, the edge of the sign shall be within 4 inches of the door frame on the latch side.
- Change: Adds the requirement for floor level exit signs in R1 occupancies.



SECTION 1012 HANDRAILS

- Handrail height, measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34" and not more than 38".
- Handrails with a circular cross section shall have an outside diameter of not less than 1 1/4" and not greater than 2".
- Handrails with a perimeter greater than 6 1/4" shall provide a graspable finger recess area on both sides of the profile.

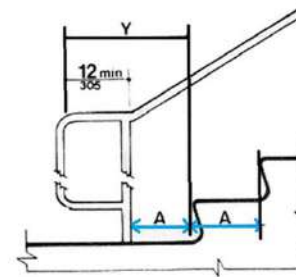


Figure 19c
Stair Handrails - Extension at Bottom of Run

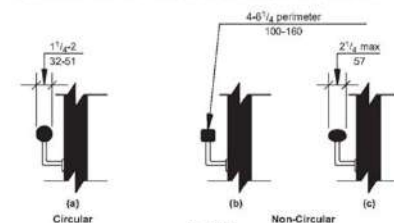


Fig. 505.7
Handrail Cross Section

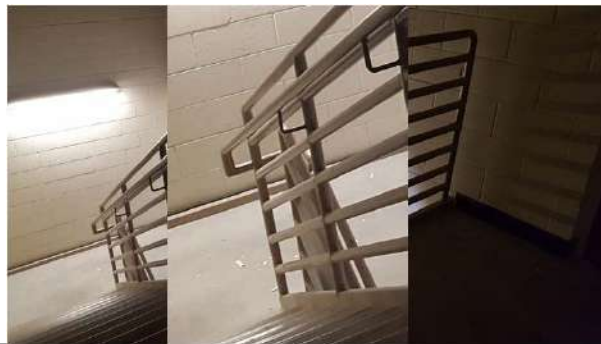
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SECTION 1012 HANDRAILS

- Handrail gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.



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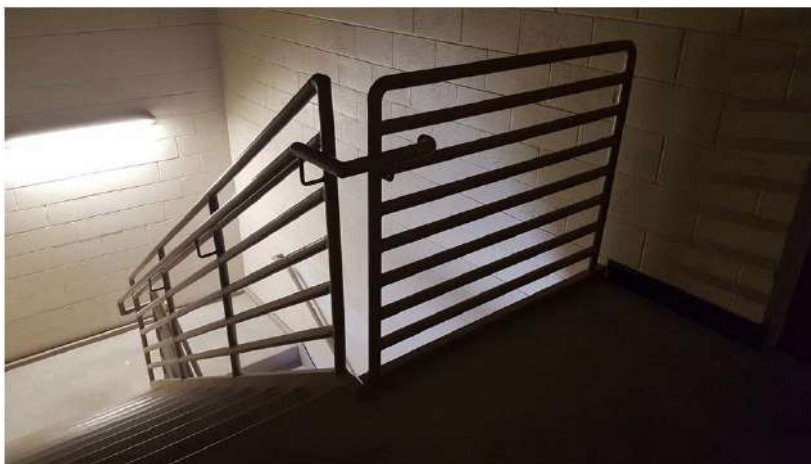


SECTION 1012 HANDRAILS

- Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent flight of stairs or ramp run.
- Where handrails are not continuous between flights the handrails shall extend horizontally not less than 12" beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser.
- At ramps where handrails are not continuous between runs, the handrails shall extend horizontally above the landing 12" minimum beyond the top and bottom of ramp runs.
- The extensions of handrails shall be in the same direction of the flights of stairs at stairways and the ramp runs at ramps.

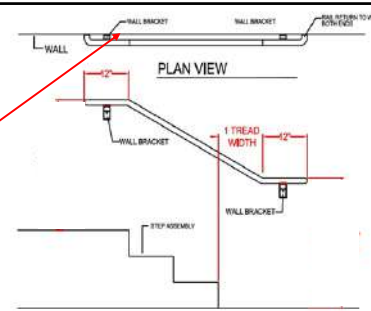


SECTION 1012 HANDRAILS



SECTION 1012 HANDRAILS

- Clear space between a handrail and a wall or other surface shall be not less than 1 ½".
- Projections into the required width of aisles, stairways and ramps at each side shall not exceed 4 ½" at or below the handrail height.
- Intermediate handrails located in such a manner that all portions of the stairway minimum width or required capacity are within 30" of a handrail.
- On monumental stairs, handrails shall be located along the most direct path of egress travel.



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SECTION 1013 GUARDS

- Guards shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, aisles, stairs, ramps and landings that are located more than 30" measured vertically to the floor or grade below at any point within 36" horizontally to the edge of the open side.
- Guards shall be adequate in strength and attachment in accordance with Section 1607.8 of the International Building Code.

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SECTION 1013 GUARDS - Exceptions



Loading Docks



Stages



Catwalks



Spaces Above Stages



Service Bays



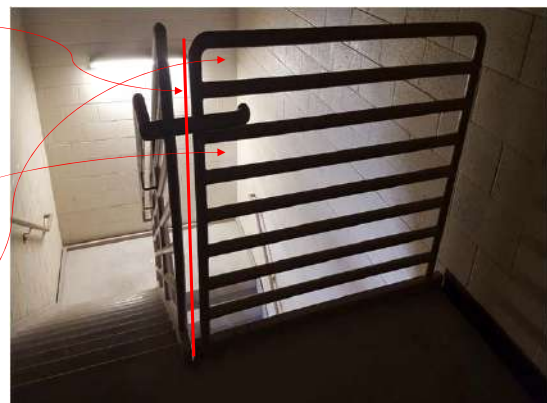
SECTION 1013 GUARDS - Basics

Required guards shall be not less than 42" high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On stairs, from the line connecting the leading edges of the tread nosings; and
3. On ramps, from the ramp surface at the guard.

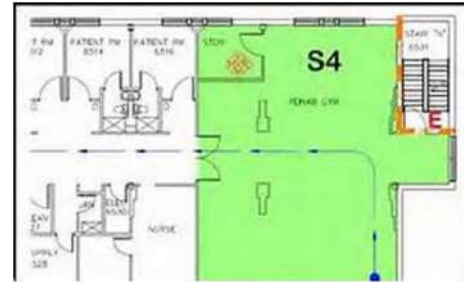
Required guards shall not have openings that allow passage of a sphere 4" in diameter from the walking surface to the required guard height.

From a height of 36" to 42", guards shall not have openings that allow passage of a sphere 4 3/8" in diameter.



1014.2 Egress through intervening spaces.

- Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an exit.
- Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.
- Through a room that can be locked preventing egress.

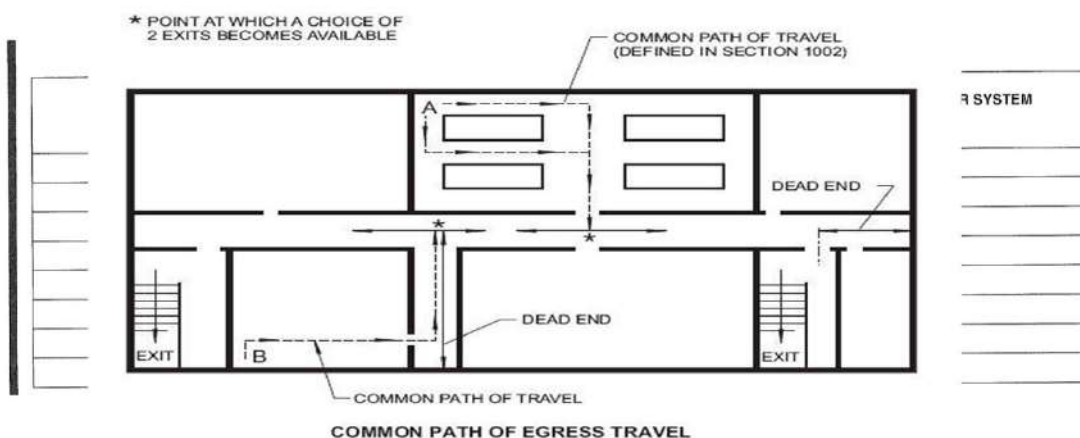


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1014.2.1 Multiple tenants.



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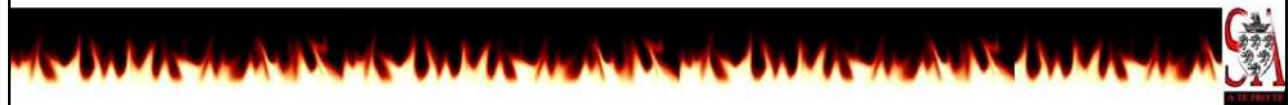
1015 EXIT AND EXIT ACCESS DOORWAYS

- Two exits or exit access doorways shall be provided where:
- The occupant load exceeds Table 1015.1.
- Common path of travel exceeds 1014.3.
- Where required by Section 1015.3, 4, 5 & 6.
- Added Group I-2 to the table in 2012.

TABLE 1015.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

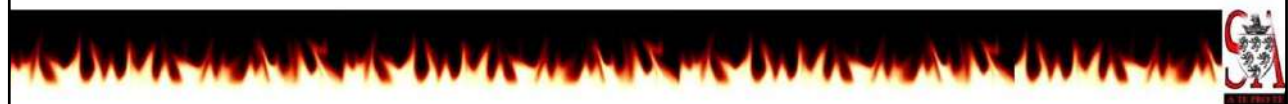
OCCUPANCY	MAXIMUM OCCUPANT LOAD
A, B, E, F, M, U	49
H-1, H-2, H-3	3
H-4, H-5, I-1, I-2, I-3, I-4, R	10
S	29

1015.1.1 Three or more exits or exit access doorways. Three exits or exit access doorways shall be provided from any space with an occupant load of 501 to 1,000. Four exits or exit access doorways shall be provided from any space with an occupant load greater than 1,000.



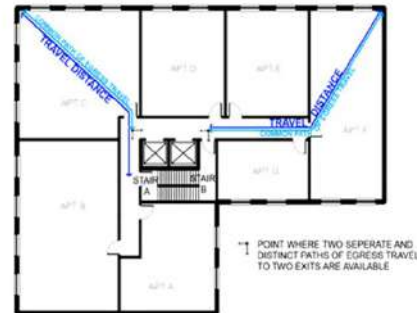
Section 1015.6 (NEW)

- Day care means of egress.
- New section dealing with day care facilities.
 - Rooms where infants or toddlers are cared for are limited to 10 children maximum when the room has only one exit.
 - More than 10 requires two exits.
 - Spaces that house older children (Group E) can use the 49 maximum occupant load in Table 1015.1.



Section 1016

- Clarify measurement of exit access travel distance.
 - The measurement would be from the most remote point on the floor to the closest doorway leading to an exit stairway or ramp.
 - When exit access stairways or ramps are part of the route, they will be included in the exit access travel distance.
 - The exceptions being open parking garages and outdoor stadiums.



SECTION 1018 CORRIDORS

- Corridors shall be fire-resistance rated in accordance with Table 1018.1. The corridor walls required to be fire-resistance rated shall comply with Section 708 of the International Building Code for fire partitions.
- 5 exceptions apply including Group E with one door to the exterior.

CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system ²
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	Not Permitted	0.5
I-2 ^a , I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1 ^b

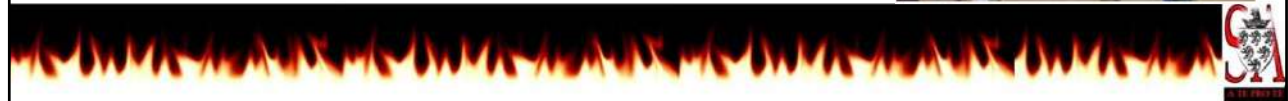
Table 1018.2

- Moved the requirements for corridor width into table format.
- 1018.3 Obstruction. The required width of corridors shall be unobstructed.
- 1018.4 Dead ends. Where more than one exit or exit access doorway is required, the exit access shall be arranged such that there are no dead ends in corridors more than 20' in length.
- 3 exceptions apply including 50' allowance for automatic sprinkler system groups B, E, F, I-1, M, R-1, R-2, R-4, S and U.

**TABLE 1018.2
MINIMUM CORRIDOR WIDTH**

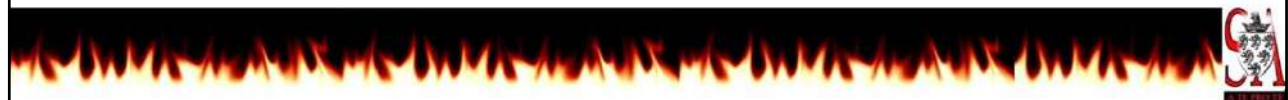
OCCUPANCY	WIDTH (minimum)
Any facilities not listed below	44 inches
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24 inches
With a required occupancy capacity less than 50	36 inches
Within a dwelling unit	36 inches
In Group E with a corridor having a required capacity of 100 or more	72 inches
In corridors and areas serving gurney traffic in occupancies where patients receive out-patient medical care, which causes the patient to be incapable of self-preservation	72 inches
Group I-2 in areas where required for bed movement	96 inches

For SI: 1 inch = 25.4 mm.



Section 1018.6 Corridor continuity

- Fire-resistance-rated corridors shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms.
- Where a corridor leads to an open exit access stairway, the corridor continuity requirements would still be applicable down the stairway and continue in a corridor leading to an exit on the adjacent floor.
- Exceptions:
 - Foyers, lobbies or reception rooms constructed as required for corridors shall not be construed as intervening rooms.



1020.2 Width and capacity in the 2015 IBC.

- The required capacity of corridors shall be determined as specified in Section 1005.1, but the minimum width shall be not less than that specified in Table 1020.2.
 - Exception: In Group I-2 occupancies, corridors are not required to have a clear width of 96 inches in areas where there will not be stretcher or bed movement for access to care or as part of the defend-in-place strategy.

TABLE 1020.2
MINIMUM CORRIDOR WIDTH

OCCUPANCY	MINIMUM WIDTH (inches)
Any facilities not listed below	44
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24
With an occupant load of less than 50	36
Within a dwelling unit	36
In Group E with a corridor having an occupant load of 100 or more	72
In corridors and areas serving stretcher traffic in ambulatory care facilities	72
Group I-2 in areas where required for bed movement	96

For SI: 1 inch = 25.4 mm



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Corridor Widths in the 2015 IBC.

AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to individuals who are rendered incapable of self-preservation by the services provided.



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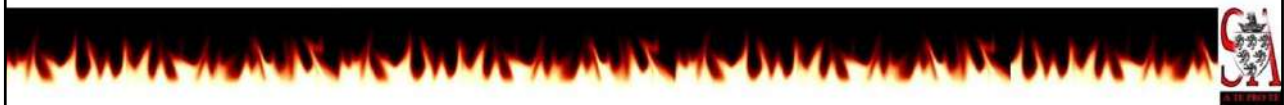
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Section 1019.4

- **Egress balcony location (NEW)**

- Egress balconies, as an element of exit access, must be separated from the lot lines by a minimum distance of 10'-0"; or
- Are protected in accordance with Section 705 of the International Building Code based on fire separation distance.



SECTION 1020 EXITS

- Exits shall comply with Sections 1020 through 1026 and the applicable requirements of Sections 1003 through 1013.
- An exit shall not be used for any purpose that interferes with its function as a means of egress.
- Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the exit discharge.
- Exits shall be continuous from the point of entry into the exit to the exit discharge.

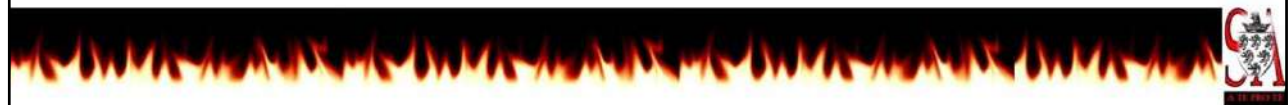


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Section 1021.2

- Exits from stories
 - The main body of the section allows for single exits or single exit access from floors that meet the occupant load/number of dwelling units and travel distances specified in Table 1021.2(1) and 1021.2(2).
 - For new Exception 3 see Section 1021.2.3.
 - Per new Exception 7, in limited circumstances exits are now permitted to be arranged where they serve a portion of a story instead of requiring that all of the required exits from the story to be accessible to all of the occupants.



1021.2 Single Exits from Stories.

[B] TABLE 1021.2(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANTS PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
First story or basement	A, B ^b , E, F ^b , M, U, S ^b	49 occupants	75 feet
	H-2, H-3	3 occupants	25 feet
	H-4, H-5, I, R-1, R-2 ^{b,c} , R-4	10 occupants	75 feet
	S	29 occupants	100 feet
Second story	B, F, M, S	29 occupants	75 feet
Third story and above	NP	NA	NA



Table 1021.2(1)

• Table 1021.2(1) Stories with one exit or access to one exit for R-2 occupancies (NEW)

- New table to provide a single means of egress for floors that contain 4 or fewer apartment units (i.e. dwelling units).
- Dormitory or group homes (i.e., sleeping units, use Table 1021.2(2).

TABLE 1021.2(1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story	R-2 ^{a,h}	4 dwelling units	125 feet
Fourth story and above	NP	NA	NA

For SE: 1 foot = 304.8 mm.

NP – Not Permitted

NA – Not Applicable

a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1029.

b. This table is used for R-2 occupancies consisting of *dwelling units*. For R-2 occupancies consisting of *sleeping units*, use Table 1021.2(2).

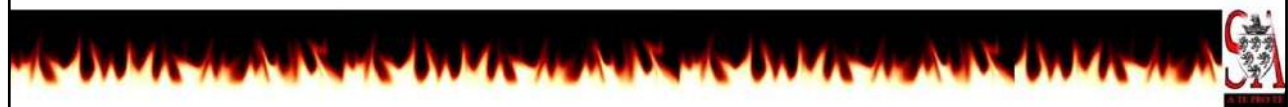


Table 1021.2 (2)

• Table 1021.2(2) Stories with one exit or access to one exit for other occupancies (NEW)

- New table to provide a single means of egress for floors that contain uses other than Group R-2 dwelling units.

TABLE 1021.2(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANTS PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
First story or basement	A, B ^a , E, F ^a , M, U, S ^a	49 occupants	75 feet
	H-2, H-3	3 occupants	25 feet
	H-4, H-5, I, R-1, R-2 ^{a,c} , R-4	10 occupants	75 feet
	S	29 occupants	100 feet
Second story	B, F, M, S	29 occupants	75 feet
Third story and above	NP	NA	NA

For SE: 1 foot = 304.8 mm.

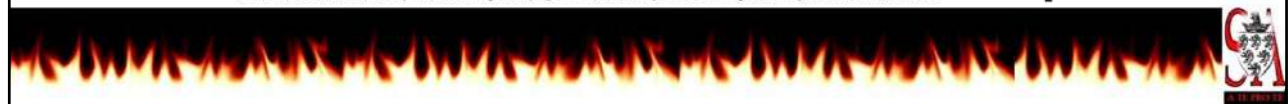
NP – Not Permitted

NA – Not Applicable

a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1029.

b. Group B, F and S occupancies in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.

c. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1021.2(1).



Section 1021

Number of exits and exit configuration

- **1021.2.1 Mixed occupancies**

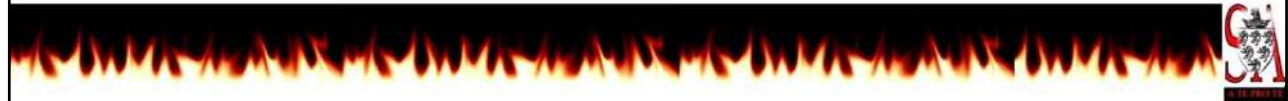
- A ratio equation to be used to determine if a single exit is allowed to serve the combined occupant load from different occupancies.

- **1021.2.3 Single-story of multi-story dwelling units (NEW)**

- Allows for individual dwelling units to have a single exit out of the unit.
- This could be used for Group R-2 or R-3 for dwelling units such as apartments within apartment buildings, apartments within mixed use buildings, or townhouses type units.

- **1021.3.1 Access to exits at adjacent levels (NEW)**

- Coordinate with the open exit access stairway provisions, and the exit access travel provisions in Section 1016.1.



1021.2.3 Single-story or multi-story dwelling units.

- Individual single-story or multi-story dwelling units shall be permitted to have a single exit within and from the dwelling unit provided that all of the following criteria are met:
 1. The dwelling unit complies with Section 1015.1 as a space with one means of egress and
 2. Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.
- Change: Clarifies when a single exit is permitted from a dwelling unit and allows exits to be arranged where they serve a portion of a story.



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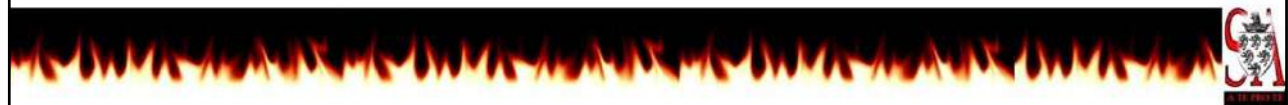
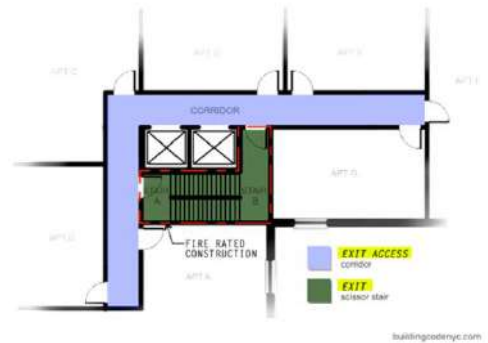
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Section 1022

Interior exit stairways and ramps

- **1022.2 Construction**

- Interior exit stairway and ramp enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories.
- Exit stairways and ramps are required to be enclosed with fire barriers.
- **1023.3 Termination.** Interior exit stairways and ramps shall terminate at an exit discharge or a public way.



1022.4 Openings.

- Interior exit stairways and ramps opening protectives shall be in accordance with the requirements of Section 716 of the International Building Code.
- Openings in Interior exit stairways and ramps other than unprotected exterior openings shall be limited to those necessary for exit access to the enclosure from normally occupied spaces and for egress from the enclosure.
- Elevators shall not open into an exit passageway.



1022.5 Penetrations.

- Penetrations into and openings through interior exit stairways and ramps are prohibited except for required exit doors, equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication systems and electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches.
- Such penetrations shall be protected in accordance with Section 714 of the International Building Code. There shall be no penetrations or communication openings, whether protected or not, between adjacent interior exit stairways and ramps.
- Exception: Membrane penetrations shall be permitted on the outside of the interior stairway and ramp. Such penetrations shall be protected in accordance with Section 714.3.2 of the International Building Code.



1022.5 Penetrations.



SECTION 1022.7 EXTERIOR EXIT STAIRWAYS AND RAMPS

- 1027.6 Exterior exit stairway and ramp protection. Exterior exit stairways and ramps shall be separated from the interior of the building as required in Section 1023.2. *(1 hr for less than 4 stories, 2 hours for 4 or more stories).*
- Openings shall be limited to those necessary for egress from normally occupied spaces.
- Where a vertical plane projecting from the edge of an exterior exit stairway or ramp and landings is exposed by other parts of the building at an angle of less than 180 degrees, the exterior wall shall be rated in accordance with Section 1023.7.



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1022.9 Stairway identification signs.

- A sign shall be provided at each floor landing in an interior exit stairway and ramp connecting more than three stories designating the floor level, the terminus of the top and bottom of the interior exit stairway and ramp and the identification of the stairway or ramp.
- The signage shall also state the story of, and the direction to, the exit discharge and the availability of roof access from the interior exit stairway and ramp for the fire department.
- The sign shall be located 5 feet above the floor landing in a position that is readily visible when the doors are in the open and closed positions.
- **In addition to the stairway identification sign, a floor-level sign in visual characters, raised characters and braille complying with ICC A117.1 shall be located at each floor-level landing adjacent to the door leading from the interior exit stairway and ramp into the corridor to identify the floor level.**

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2.16



Do we need to conduct stair & sign inspections??



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SECTION 1023 EXIT PASSAGEWAYS

EXIT PASSAGEWAY. An exit component that is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives, and provides for a protected path of egress travel in a horizontal direction to the exit discharge.

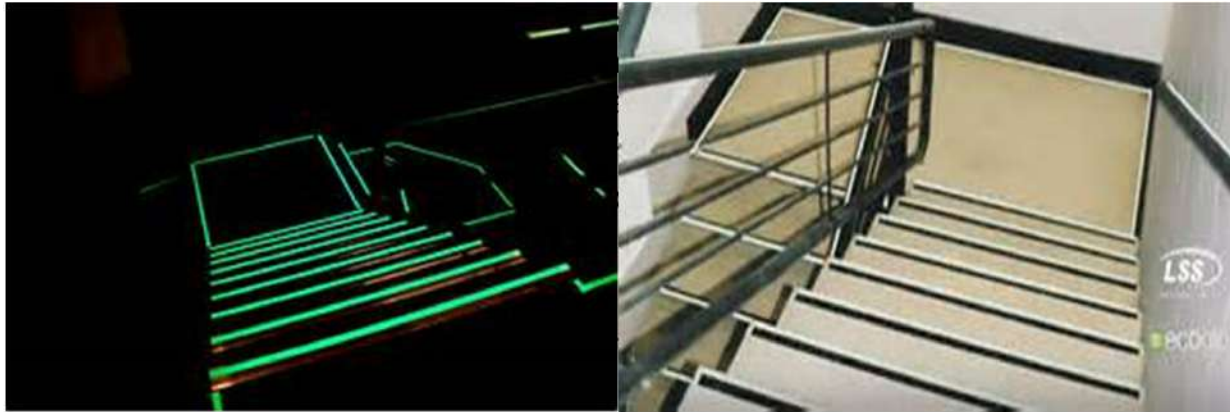
- Shall be minimum of 44", unless 50 occupants or less, 36".
- Shall be constructed with minimum of 1 hour rating, but not less than rating of any interior connecting stairs or ramp.
- Exit passageways on the level of exit discharge shall terminate at an exit discharge.
- Elevators shall not open into an exit passageway.
- Opening protectives shall be in accordance with the Section 716 of the International Building Code.
- Penetrations shall be protected in accordance with Section 714 of the International Building Code.

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HIGH-RISE BUILDING. A building with an occupied floor located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.



SECTION 1024 LUMINOUS EGRESS PATH MARKINGS



- 1024.2.6.1 Emergency exit symbol. The doors shall be identified by a low-location luminous emergency exit symbol being not less than 4" in height and shall be mounted on the door, centered horizontally, with the top of the symbol not higher than 18" above the finished floor.
- 1024.2.6.2 Door hardware markings. Door hardware shall be marked with not less than 16 square inches of luminous material.
- 1024.2.6.3 Door frame markings. The top and sides of the door frame shall be marked with a solid and continuous 1-inch- to 2-inch-wide stripe.



SECTION 1025 HORIZONTAL EXITS

- A horizontal exit shall not serve as the only exit from a portion of a building, and where two or more exits are required, not more than one-half of the total number of exits or total exit width shall be horizontal exits.
- Separation and Openings shall comply with the IBC.
- The capacity of the refuge area shall be computed based on a net floor area allowance of 3 square feet for each occupant to be accommodated therein.



1026.4 Side yards.

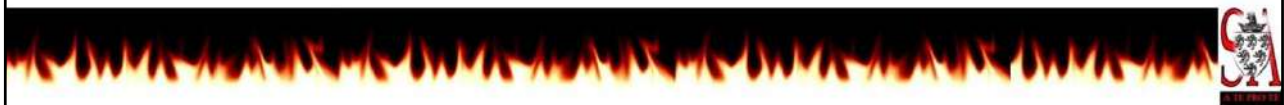
- The open areas adjoining exterior exit stairways or ramps shall be either yards, courts or public ways; the remaining sides are permitted to be enclosed by the exterior walls of the building.



Section 1026.5

- **Exterior ramps and stairways location**

- Exterior ramps and stairways, as an open exit element, must be separated from the lot lines by a minimum distance of 10'-0"; or
- Be separated from other buildings on the same lot unless the adjacent building exterior walls and openings are protected in accordance with Section 705 of the International Building Code based on fire separation distance.



SECTION 1027 EXIT DISCHARGE

- Exits shall discharge directly to the exterior of the building.
- The exit discharge shall be at grade or shall provide a direct path of egress travel to grade.
- The exit discharge shall not reenter a building.
- The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and capacity of the required exits.



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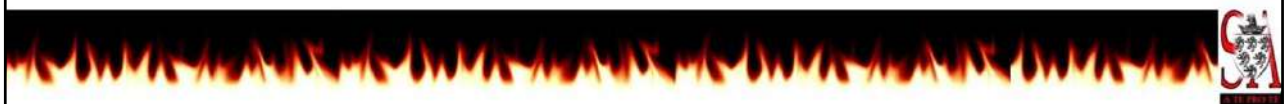
1027.5 Access to a public way.

- The exit discharge shall provide a direct and unobstructed access to a public way.
- Exception: Where access to a public way cannot be provided, a safe dispersal area shall be provided where all of the following are met:
 1. The area shall be of a size to accommodate not less than 5 square feet for each person.
 2. The area shall be located on the same lot not less than 50 feet away from the building requiring egress.
 3. The area shall be permanently maintained and identified as a safe dispersal area.
 4. The area shall be provided with a safe and unobstructed path of travel from the building.



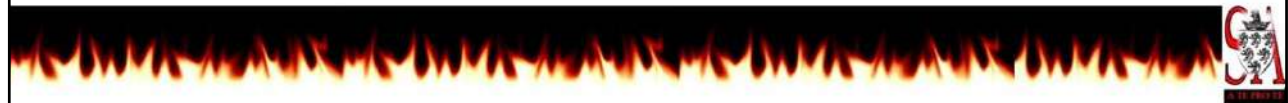
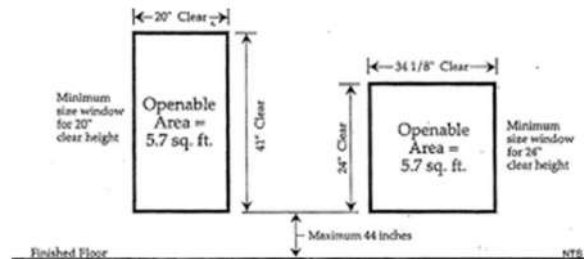
1029 EMERGENCY ESCAPE AND RESCUE

- **Emergency escape and rescue openings**
 - Scope emergency escape and rescue openings to coordinate with Group R-2 in the tables 1021.2(1) and 1021.2(2) for single exit floors and Group R-3.
 - Sprinkler requirements in other uses matched with exceptions so no longer needed.
 - Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room.
 - Shall not be required in adjoining areas of the basement.



1029 EMERGENCY ESCAPE AND RESCUE

- Basements, habitable attics and sleeping rooms
 - Door to Exterior
 - Window
- Sill height 44" maximum
- Net clear opening 5.7 SF
 - 5 SF for grade floor opening
- Minimum 20" wide by 24" tall
- Clear opening not greater than 44" above floor.



1029 EMERGENCY ESCAPE AND RESCUE

- Emergency escape and rescue opening with a finished sill height below the adjacent ground level shall be provided with a window well.
- The minimum area of the window well shall be 9 square feet, and a minimum dimension of 36 inches.
- The area of the window well shall allow the emergency escape and rescue opening to be fully opened.
- Window wells with a depth of more than 44" shall be equipped with an approved permanently affixed ladder or steps.



SECTION 1030 MAINTENANCE OF THE MEANS OF EGRESS

- 1030.2 Reliability. Required exit accesses, exits or exit discharges shall be continuously maintained free from obstructions or impediments to full instant use in the case of fire or other emergency when the building area served by the means of egress is occupied. An exit or exit passageway shall not be used for any purpose that interferes with a means of egress.
- 1030.2.1 Security Devices and Egress Locks. Security devices affecting means of egress shall be subject to approval of the fire code official. Special locking arrangements shall be installed and maintained as required by this chapter.



SECTION 1030 MAINTENANCE OF THE MEANS OF EGRESS

- 1030.6 Finishes, Furnishings and Decorations. Means of egress doors shall be readily maintained in such a manner as to be distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors.
- Furnishings, decorations or other objects shall not be placed so as to obstruct exits, access thereto, egress there from, or visibility thereof.
- Hangings and draperies shall not be placed over exit doors or otherwise be located to conceal or obstruct an exit.
- Mirrors shall not be placed on exit doors, nor shall they be placed in or adjacent to any exit in such a manner as to confuse the direction of exit.



SECTION 1030 MAINTENANCE OF THE MEANS OF EGRESS

- 1030.9 Floor Identification Signs. The floor identification signs required by Sections 1022.8 and 1104.23 shall be maintained in an approved manner.
- Change: Revised requirements for exit reliability, security, or locking devices on means of egress components.



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PART III—BUILDING AND EQUIPMENT DESIGN FEATURES

- Chapter 11 Construction Requirements for Existing Buildings. Chapter 11 applies to existing buildings constructed prior to the adoption of the code and intends to provide a minimum degree of fire and life safety to persons occupying existing buildings by providing for alterations to such buildings that do not comply with the minimum requirements of the International Building Code.
- As with other chapters of the International Fire Code, Section 1102 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

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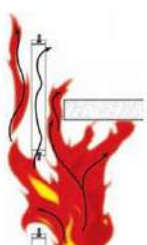



**PROTECTION – IEBC Section 703
IFC Section 1103.1**

section that currently exists in the building not be lessened.


replacing an existing ceiling with some rearranging of some components ultimately provide the same fire sprinkler coverage and protection as existed prior to the alteration.

- A fire protection feature cannot be removed even if the present Code does not require same.

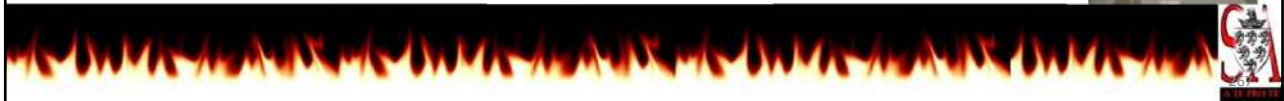
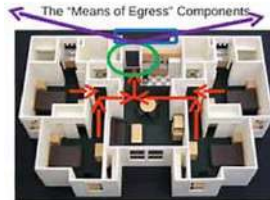
Fire Protection - 603

- Any repairs shall not reduce the current level of protection and compliance.
- Note that if repairing fire protection equipment, permission to shut off/disable such equipment is contingent upon approval by the local Fire Marshal's Office.



MEANS OF EGRESS – IEBC SECTION 704/1104.1 (IFC)

- Any level of safety that currently exists in the building's EGRESS System must not be adversely affected or lessened.
-i.e., any new building element that is replacing or covering existing elements must be at least as good/safe as the old elements (replaced interior finishes and trim, however must comply with the Code for new construction.



SECTION 1103 FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

- Existing buildings shall comply with not less than the minimum provisions specified in Table 1103.1 and as further enumerated in Sections 1103.2 through 1103.10.

TABLE 1103.1
OCCUPANCY AND USE REQUIREMENTS*

SECTION	USE			OCCUPANCY CLASSIFICATION																		
	High rise	Atrium or covered mall	Under-ground building	A	B	E	F	H-1	H-2	H-3	H-4	H-5	I-1	I-2	I-3	I-4	M	R-1	R-2	R-3	R-4	S
1103.2	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1103.3	R	—	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1103.4.1	R	—	R	—	—	—	—	—	—	—	—	—	R	R	R	R	—	—	—	—	—	—
1103.4.2	R	—	R	R	R	R	R	R	R	R	R	R	—	—	—	—	R	R	R	—	R	R
1103.4.3	R	—	R	R	R	R	R	R	R	R	R	R	—	—	—	—	R	R	R	—	R	R
1103.4.4	—	R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1103.4.5	—	—	—	—	R	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—
1103.4.6	—	—	—	R	—	R	R	R	R	R	R	R	R	R	R	R	—	R	R	R	R	R
1103.4.7	—	—	—	R	—	R	R	R	R	R	R	R	R	R	R	R	—	R	R	R	R	R



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1103.1.1 Historic buildings. **New in 2015**

- Facilities designated as historic buildings shall develop a fire protection plan in accordance with NFPA 914.
- The fire protection plans shall comply with the maintenance and availability provisions in Sections 404.3 and 404.4.



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CHAPTER 2 IEBC DEFINITIONS

- **HISTORIC BUILDING.** Any building or structure that is one or more of the following:
 - 1. Listed, or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.
 - 2. Designated as historic under an applicable state or local law.
 - 3. Certified as a contributing resource within a National Register, state designated or locally designated historic district.

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SECTION 1103 FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

1103.3 Elevator operation. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for fire-fighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3.



SECTION 1103 FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

In Group I occupancies, interior vertical openings connecting two or more stories shall be protected with 1-hour fire-resistance-rated construction.

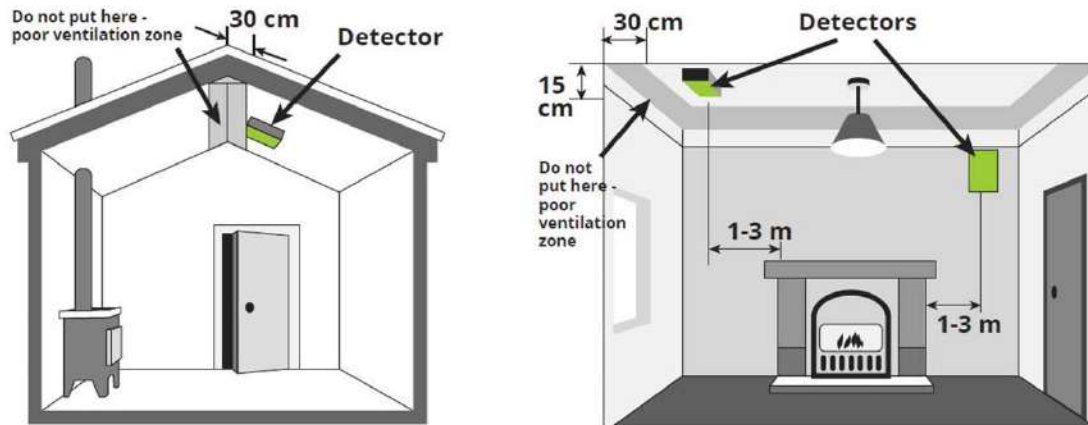
In other than Group I occupancies, interior vertical openings connecting three to five stories shall be protected by either 1-hour fire-resistance-rated construction or an automatic sprinkler system shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

In other than Group I occupancies, interior vertical openings connecting more than five stories shall be protected by 1-hour fire-resistance-rated construction.

Exceptions do apply to each group.



SECTION 1103 FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS



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SECTION 1104 MEANS OF EGRESS FOR EXISTING BUILDINGS

- Guards shall form a protective barrier not less than 42" high.
 - Exceptions:
 - 1. Existing guards on the open side of stairs shall be not less than 30" high.
 - 2. Existing guards within dwelling units shall be not less than 36" high.
 - 3. Existing guards in assembly seating areas.



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SECTION 1104 MEANS OF EGRESS FOR EXISTING BUILDINGS

- Open guards shall have balusters or ornamental patterns such that a 6" diameter sphere cannot pass through any opening up to a height of 34".

Exceptions:

1. At elevated walking surfaces for access to, and use of, electrical, mechanical or plumbing systems or equipment, guards shall have balusters or be of solid materials such that a sphere with a diameter of 21" cannot pass through any opening.
2. In occupancies in Group I-3, F, H or S, the clear distance between intermediate rails measured at right angles to the rails shall not exceed 21".
3. Approved existing open guards.



Take Away's.....

- ✓ Existing Building Provisions are similar in enforcement nature as new, with a few exceptions.
- ✓ CO detector placement is not as commonly thought.
- ✓ Fire Code Official approves many provisions.
- ✓ 2015 IFC has added new provisions such as existing buildings.
- ✓ And....



***This Concludes Our Presentation-
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