1910 Subpart E *Exit Routes and Emergency Planning*

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1910.34(a) Every employer is covered. **Sections 1910.34 through 1910.39 apply to workplaces in general industry except mobile workplaces such as vehicles or vessels.**	**1.3 Application** 1.3.1* New and Existing Buildings and Structures. The Code shall apply to both new construction and existing buildings and existing structures. 11.6* Vehicles and Vessels. 11.6.1 Vehicles. Where immobile, attached to a building, or permanently fixed to a foundation, and where subject to human occupancy, the following vehicles shall comply with the requirements of this Code that are appropriate to buildings of similar occupancy: (1) Trailers (2) Railroad cars (3) Streetcars (4) Buses (5) Conveyances similar to those in 11.6.1(1) through 11.6.1(4) 11.6.2 Vessels. Any ship, barge, or other vessel permanently fixed to a foundation or mooring, or unable to get underway by means of its own power, and occupied for purposes other than navigation shall be subject to the requirements of this Code that apply to buildings of similar occupancy.	**101.2 Scope.** This code establishes regulations affecting or relating to structures, processes, premises and safeguards regarding: 1. The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; 2. Conditions hazardous to life, property or public welfare in the occupancy of structures or premises; 3. Fire hazards in the structure or on the premises from occupancy or operation; 4. Matters related to the construction, extension, repair, alteration or removal of fire suppression or alarm systems. **1001.1 General.** Buildings or portions thereof shall be provided with a means of egress system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof. Sections 1003 through 1026 shall apply to new construction. Sections 1027 and 1028 shall apply to existing buildings.	Both E and LSC cover new & existing buildings. Both E and LSC cover vehicles & vessels when immobile. 1910.38 and 1910.39 are not part of this analysis. **101 protection is equivalent to Subpart E** **IFC protection is equivalent to Subpart E**
1910.34(b) Exits routes are covered. The rules in §§ 1910.34 through 1910.39 cover the minimum requirements for exit routes that employers must provide in their workplace so that employees may evacuate the workplace safely during an emergency. Sections 1910.34 through 1910.39 also cover the minimum requirements for emergency action plans and fire prevention plans.	**1.2* Purpose**. The purpose of this Code is to provide minimum requirements, with due regard to function, for the • design, • operation, and • maintenance of buildings and structures • for safety to life from fire. **Its provisions will also aid life safety in similar emergencies.**	**101.3 Intent.** The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing • a reasonable level of life safety and • property protection from the hazards of fire, explosion or dangerous conditions • in new and existing buildings, structures and premises • and to provide safety to fire fighters and emergency responders during emergency operations.	Both E and 101 cover fire and other emergencies, however 101 coverage extends to features other than exit routes and is therefore more comprehensive than E. 1910.38 and 1910.39 are not part of this analysis. **E does not mention accessible means of egress implicitly. NFPA 101 covers this in Section 7.5.4.** **101 protection exceeds Subpart E** Both E and IFC cover fire and other emergencies, however IFC coverage extends to features other than exit routes. It also provides protection for emergency response workers. The IFC is therefore more comprehensive than E

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			1910.38 and 1910.39 are not part of this analysis. **E does not mention accessible means of egress implicitly. The IFC covers this in Section 1007.** **IFC protection exceeds Subpart E**
1910.34(c) Definitions.	**Chapter 3 in 101 contains definitions** **Each Occupancy chapter may also provide definitions it needs**	**SECTION 1002 DEFINITIONS** **SECTION 202 GENERAL DEFINITIONS**	
Electroluminescent means a light-emitting capacitor. Alternating current excites phosphor atoms when placed between the electrically conductive surfaces to produce light. This light source is typically contained inside the device.	**3.3.63* Electroluminescent. Refers to a light-emitting capacitor in which alternating** current excites phosphor atoms placed between electrically conductive surfaces and produces light. **A.3.3.63 Electroluminescent. This light** source is typically contained inside the device.	Not in IFC	Not used at all in 101 Means of Egress (MOE) Chapter 7. E uses term in 1910.37(b)(6). **101 definition is equivalent to Subpart E** Term not defined or used in IFC. However, there is no impact on employee protection because E allows this device as an option – see discussion under 1910.37(b)(6). **IFC is commensurate with Subpart E**
Exit means that portion of an exit route that is generally separated from other areas to provide a protected way of travel to the exit discharge. An example of an exit is a two-hour fire resistance-rated enclosed stairway that leads from the fifth floor of an office building to the outside of the building.	**3.3.75* Exit. That portion of a means of egress** that is separated from all other spaces of a building or structure by construction or equipment as required to provide a protected way of travel to the exit discharge. **A.3.3.75 Exit.** Exits include exterior exit doors, exit passageways, horizontal exits, exit stairs, and exit ramps. In the case of a stairway, the exit includes the stair enclosure, the door to the stair enclosure, stairs and landings inside the enclosure, the door from the stair enclosure to the outside or to the level of exit discharge, and any exit passageway and its associated doors, if such are provided, so as to discharge the stair directly to the outside. In the case of a door leading directly from the street floor to the street or open air, the exit comprises only the door. Doors of small individual rooms, as in hotels, while constituting exit access from the room, are not referred to as exits, except where they lead directly to the outside of the building from the street floor.	**EXIT.** That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives as required to provide a protected path of egress travel between the exit access and the exit discharge. Exits include exterior exit doors at ground level, exit enclosures, exit passageways, exterior exit stairs, exterior exit ramps and horizontal exits.	101 does not use the undefined term “generally” – it is noted in NFPA’s Manual of Style as a possible unenforceable and vague term to be avoided in their standards. **101 definition is equivalent to Subpart E** IFC does not use the vague, undefined, and hard to enforce term “generally”. **IFC definition is equivalent to Subpart E**
Exit access means that portion of an exit route that leads to an exit. An example of an	**3.3.76 Exit Access.** That portion of a means of egress that leads	**EXIT ACCESS. That portion of a means of egress system that leads from any occupied portion of a**	**101 definition is equivalent to Subpart E**

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exit access is a corridor on the fifth floor of an office building that leads to a two-hour fire resistance-rated enclosed stairway (the Exit).	to an exit.	**building or structure to an exit.**	**IFC definition is equivalent to Subpart E**
Exit discharge means the part of the exit route that leads directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside. An example of an exit discharge is a door at the bottom of a two-hour fire resistance-rated enclosed stairway that discharges to a **place of safety** outside the building.	**3.3.77 Exit Discharge.** That portion of a means of egress between the termination of an exit and a public way.	**EXIT DISCHARGE.** That portion of a means of egress system between the termination of an exit and a public way.	101 only allows exit discharge to end at public way with the exception of areas of refuge in detention & correctional occupancies – **7.7.1.4**, and is therefore more protective. Literal application of the OSHA definition allows an exit route to end in a walkway, courtyard, or refuge area even if employees cannot get from there to a public way. **101 protection exceeds Subpart E** IFC only allows exit discharge to end at public way or safe dispersal area (1027.6), and is therefore more protective. Literal application of the OSHA definition allows an exit route to end in a walkway, courtyard, or refuge area even if employees cannot get from there to a public way. **IFC protection exceeds Subpart E**
Exit route means a continuous and unobstructed path of exit travel from any point within a workplace to a place of safety (including refuge areas). An exit route consists of three parts: The exit access; the exit; and, the exit discharge. (An exit route includes all vertical and horizontal areas along the route.)	**3.3.161* Means of Egress.** A continuous and unobstructed way of travel from any point in a building or structure to a public way consisting of three separate and distinct parts: (1) the exit access, (2) the exit, and (3) the exit discharge. **A.3.3.161 Means of Egress**. A means of egress comprises the vertical and horizontal travel and includes intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, elevators, enclosures, lobbies, escalators, horizontal exits, courts, and yards.	**Means Of Egress.** A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.	OSHA changed the term MOE to Exit Routes in 2002 plain language update. 101 is more protective by virtue of the difference in definition of the exit discharge component (see above). **101 protection exceeds Subpart E** IFC is more protective than E by virtue of the difference in definition of the exit discharge component (see above). **IFC protection exceeds Subpart E**
High hazard area means an area inside a workplace in which operations include high hazard materials, processes, or contents.	**3.3.178.8.2* High Hazard Industrial Occupancy.** An industrial occupancy in which industrial operations that include high hazard materials, processes, or contents are conducted. **A.3.3.178.8.2 High Hazard Industrial Occupancy**. A high hazard industrial occupancy includes occupancies where gasoline and other flammable liquids are handled, used, or stored under	**202 *Occupancy Classification*** **High-hazard Group H.** High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of quantities allowed in control	**101 definition is equivalent to Subpart E** IFC contains a list of 15 threshold exceptions (not reproduced here), and specifies hazardous material quantity thresholds in **Table 2703.8.3.2**, rather than E's performance language.

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	such conditions that involve possible release of flammable vapors; where grain dust, wood flour or plastic dust, aluminum or magnesium dust, or other explosive dusts are produced; where hazardous chemicals or explosives are manufactured, stored, or handled; where materials are processed or handled under conditions that might produce flammable flyings; and where other situations of similar hazard exist. **Chapters 40 and 42** include detailed provisions on high hazard industrial and storage occupancies.	areas constructed and located as required in Section **2703.8.3**. Hazardous uses are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this code and the requirements of **Section 415 of the *International Building Code*** **Exceptions:** The following shall not be classified in Group H, but shall be classified in the occupancy that they most nearly resemble . . .	**IFC definition is commensurate with Subpart E**
Occupant load means the total number of persons that may occupy a workplace or portion of a workplace at any one time. The occupant load of a workplace is calculated by dividing the gross floor area of the workplace or portion of a workplace by the occupant load factor for that particular type of workplace occupancy. Information regarding "Occupant load" is located in **NFPA 101-2009, Life Safety Code**.	**3.3.153.2 Occupant Load.** The total number of persons that might occupy a building or portion thereof at any one time. **7.3.1.2* Occupant Load Factor.** The occupant load in any building or portion thereof shall be not less than the number of persons determined by dividing the floor area assigned to that use by the occupant load factor for that use as specified in **Table 7.3.1.2**, **Figure 7.3.1.2(a), and Figure 7.3.1.2(b)**. Where both gross and net area figures are given for the same occupancy, calculations shall be made by applying the gross area figure to the gross area of the portion of the building devoted to the use for which the gross area figure is specified and by applying the net area figure to the net area of the portion of the building devoted to the use for which the net area figure is specified.	**OCCUPANT LOAD.** The number of persons for which the means of egress of a building or portion thereof is designed. **1004.1 Design occupant load.** In determining means of egress requirements, the number of occupants for whom means of egress facilities shall be provided shall be determined in accordance with this section. 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. **1004.1.1 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 1004.1.1 . 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 per unit of area factor assigned to the occupancy as set forth in Table 1004.1.1 . Where an intended use is not listed in Table 1004.1.1 , the building official shall establish a use based on a listed use that most nearly resembles the intended use.	OSHA's definition combines 101's Chapter 3 definition and Chapter 7 requirement. 101 uses net instead of gross for educational & assembly occupancies, which would yield lower occupant load and smaller exits. However, **1910.36(f)** would limit the occupant load proportionally. The table of occupant load factors vs. use is not reproduced here. No load factors are given for storage or special purpose industrial – load for these two is based on "probable number of occupants" – performance language similar to E. **101 definition is commensurate with Subpart E** OSHA's definition combines IFC Sec 1002 definition and Sec 1004 requirement. IFC uses net instead of gross factors for educational & assembly occupancies, which would yield lower occupant load and smaller exits. However, 1910.36(f) would limit the occupant load proportionally. The table of occupant load factors vs. function of space is not reproduced here – all occupancies are covered. **IFC definition is commensurate with Subpart E**
Refuge area means either: **(1) A space along an exit route** that is protected from the effects of fire by separation from other spaces within the building by a barrier with at least a one-hour fire resistance-	**3.3.20* Area of Refuge.** An area that is either (2) a space located in a path of travel leading to a public way that is protected from the effects of fire, either by means of separation from other spaces in the same building or by virtue of location, thereby permitting a delay in egress travel from any level.	**AREA OF REFUGE.** An area where persons unable to use stairways can remain temporarily to await instructions or assistance during emergency evacuation. **1007.6.2 Separation.**	OSHA's definition combines 101 Chapter 3 definition and 101 Chapter 7 requirement. Exception for existing buildings is mitigated by compensatory features in 7.2.12, including elevator protection, communication system, door features, and penetration protection.

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rating; or	**7.2.12.3.4* Each area of refuge** shall be separated from the remainder of the story by a barrier with not less than a 1-hour fire resistance rating, unless one of the following criteria applies: (1) A greater rating is required in other provisions of this Code. (2) The barrier is an existing barrier with a minimum 30-minute fire resistance rating.	Each area of refuge shall be separated from the remainder of the story by a smoke barrier complying with Section 709 of the *International Building Code* or a horizontal exit complying with Section 1022 . Each area of refuge shall be designed to minimize the intrusion of smoke. **Exception:** Areas of refuge located within a vertical exit enclosure.	OSHA's definition combines IFC Sec 1002 definition and Sec 1007 requirement. IBC Section 709 requires 1-hour rating of the smoke barrier, making it equivalent to option (1) in E. IFC does not have a sprinkler protection option equivalent to (2) in E, however there is no impact on employee protection without this option. Also, an area of refuge is not required by OSHA, but rather it is one of the options for termination of exit discharge. **IFC definition is commensurate with Subpart E**
(2) A floor with at least two spaces, separated from each other by smoke-resistant partitions, in a building protected throughout by an automatic sprinkler system that complies with § 1910.159 of this part.	**3.3.20* Area of Refuge (1)** a story in a building where the building is protected throughout by an approved, supervised automatic sprinkler system and has not less than two accessible rooms or spaces separated from each other by smoke-resisting partitions;		**101 definition is commensurate with Subpart E**
Self-luminous means a light source that is illuminated by a self-contained power source (e.g., tritium) and that operates independently from external power sources. Batteries are not acceptable self-contained power sources. The light source is typically contained inside the device.	**3.3.223* Self-Luminous.** Illuminated by a self-contained power source and operated independently of external power sources. **A.3.3.223 Self-Luminous.** An example of a self-contained power source is tritium gas. Batteries do not qualify as a self-contained power source. The light source is typically contained inside the device.	Term Not Defined in IFC	A portion of E wording is in 101 annex. **101 definition is equivalent to Subpart E** Term not defined or used in IFC because their use is limited to existing devices. Even if the definition was different, there would be no impact on employee protection because E allows this device as an option – see discussion under 1910.37(b)(6). **IFC is commensurate with Subpart E**
§ 1910.35 Compliance with alternate exit route codes. OSHA will deem an employer demonstrating compliance with the exit route provisions of Chapter 7 (''Means of Egress'') of NFPA 101, Life Safety Code, 2009 edition, or the exit-route provisions of Chapter 10 (''Means of Egress'') of the International Fire Code, 2009 edition, to be in compliance with the corresponding requirements in §§ 1910.34, 1910.36, and 1910.37	The ***Life Safety Code NFPA 101***is available from ***The National Fire Protection Association*** (**www.nfpa.org**)	***The International Fire Code (IFC)*** **and** ***International Building Code (IBC)*** is available from the International Code Council. (**www.iccsafe.org**)	**The 2009 Editions of these documents may be used as "safe harbor" for means of egress design and construction for compliance with** **OSHA 1910 Subpart E "*Exit Routes and Emergency Planning"*** **Note to paragraph § 1910.36(b) of this section:** For assistance in determining the number of exit routes necessary for your workplace, consult Chapter 7 (''Means of Egress'') of NFPA 101–2009, Life Safety Code, or Chapter 10 (''Means of Egress'') of IFC– 2009, International Fire Code.
1910.36(a) Basic requirements. Exit routes must meet the following design and construction requirements:	**7.1.1* Application.** Means of egress for both new and existing buildings shall comply with this chapter. (See also 5.5.3.)	**1001.1 General.** Buildings or portions thereof shall be provided with a means of egress system as required by this chapter.	**101 definition is equivalent to Subpart E**

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	A.7.1.1 An installation of supplemental evacuation equipment is not recognized as a means of egress. Consequently, such equipment does not satisfy any requirement for minimum number of, capacity of, travel distance to, or remoteness of, means of egress.	The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof. Sections **1003** through **1029** shall apply to new construction. Sections **1030** shall apply to existing buildings.	**IFC is equivalent to Subpart E**
1910.36(a)(1) An exit route must be permanent. Each exit route must be a permanent part of the workplace.	**7.2.2 Stairs.** **7.2.2.3.1.1 All stairs serving as required means of egress** shall be of permanent fixed construction, unless they are stairs serving seating that is designed to be repositioned in accordance with Chapter 12 and Chapter 13. **7.2.5.3 Ramp Details.** **7.2.5.3.1 Construction.** Ramp construction shall be as follows: **(1)** All ramps serving as required means of egress shall be of permanent fixed construction. **7.1.10 Means of Egress Reliability.** **7.1.10.1* General.** Means of egress shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency. **A.7.1.10.1** A proper means of egress allows unobstructed travel at all times. Any type of barrier including, but not limited to, the accumulations of snow and ice in those climates subject to such accumulations is an impediment to free movement in the 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. **1028.1 General.** The means of egress for buildings or portions thereof shall be maintained in accordance with this section.	**OSHA E does not define permanent**. 101 includes the word permanent in the provisions for stairs & ramps. Permanence for other features is covered by reliability section of 101. **101 definition is equivalent to Subpart E** IFC does not use the word permanent, however all requirements dictate built-in construction features as well as requiring that they be maintained in place. **IFC is equivalent to Subpart E**
1910.36(a)(2) An exit must be separated by fire resistant materials. Construction materials used to separate an exit from other parts of the workplace must have a one-hour fire resistance-rating if the exit connects three or fewer stories and a two-hour fire resistance-rating if the exit connects four or more stories.	**7.1.3.2.1 Exits** Where this Code requires an exit to be separated from other parts of the building, the separating construction shall meet the requirements of **Section 8.2** and the following: (1)* The separation shall have not less than a 1-hour fire resistance rating where the exit connects three stories or less. (2)* The separation shall have not less than a 2-hour fire resistance rating where the exit connects four or more stories, unless one of the following conditions exists . . . (3) The 2-hour fire resistance–rated separation required by 7.1.3.2.1(2) shall be constructed of an assembly of noncombustible or limited-combustible materials and shall be supported by construction having not less than a 2-hour fire resistance rating. **In Type III, Type IV, and Type V construction, fire-retardant-treated wood enclosed in noncombustible or limited-**	**1022.1 Enclosures required.** Interior exit stairways and interior exit ramps shall be enclosed with fire barriers constructed in accordance with **Section 707** of the *International Building Code* or horizontal assemblies constructed in accordance with **Section 712** of the ***International Building Code***, or both. Exit 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. The number of stories connected by the exit enclosure shall include any basements but not any mezzanines. An exit enclosure shall not be used for any purpose other than means of egress.	101 has specific provisions that are less stringent, but contain compensatory features. Others are found in 7.2.2.5.1.3 (two story bldgs.) and 7.2.2.6.3.1 (outside stairs). All Three exceptions to item (2) include compensatory features such as sprinkler systems, sprinkler supervision, and standpipe systems. Additionally, 101 addresses the enclosure of vertical openings that are not exits (8.6) and rating of exit access corridors (7.1.3.1). **101 protection is commensurate with Subpart E** **The nine exceptions to IFC 1022.1** either have compensatory features such as sprinkler protection, use limitations, or size limitations, or they apply to open buildings (or portions thereof) where the enclosure would not be needed for protection. Additionally, IFC addresses the enclosure of vertical openings that are not exits (704)

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	combustible materials shall be permitted.	**Exceptions . . .(1) . . .(9)**	and rating of exit access corridors (1017). **IFC protection is commensurate with Subpart E**
1910.36(a)(3) Openings into an exit must be limited. **An exit is** permitted to have only those openings necessary to allow access to the exit from occupied areas of the workplace, or to the exit discharge. An opening into an exit must be protected by a self-closing fire door that remains closed or automatically closes in an emergency upon the sounding of a fire alarm or employee alarm system.	**7.1.3.2.1 (8)* Openings in exit enclosures** shall be limited to doors from normally occupied spaces and corridors and doors for egress from the enclosure, unless one of the following conditions exists: (See conditions (a), (b), or (c) **(9)** Penetrations into, and openings through, an exit enclosure assembly shall be limited to the following: (a) Door assemblies permitted by 7.1.3.2.1(8) [equipped with door closers complying with 7.2.1.8.] **7.2.1.8 Self-Closing Devices.** **7.2.1.8.2 In any building of low or ordinary hazard contents**, as defined in 6.2.2.2 and 6.2.2.3, or where approved by the authority having jurisdiction, doors shall be permitted to be automatic-closing, provided that the following criteria are met: (1) Upon release of the hold-open mechanism, the door becomes self-closing. (2) The release device is designed so that the door instantly releases manually and, upon release, becomes self-closing, or the door can be readily closed. (3) The automatic releasing mechanism or medium is activated by the operation of approved smoke detectors installed in accordance with the requirements for smoke detectors for door release service in ***NFPA 72, National Fire Alarm Code.*** (4) Upon loss of power to the hold-open device, the hold-open mechanism is released and the door becomes self- closing. (5) The release by means of smoke detection of one door in a stair enclosure results in closing all doors serving that stair.	**1022.3 Openings and penetrations.** Exit enclosure opening protectives shall be in accordance with the requirements of Section 715 of the *International Building Code* Except as permitted in Section **402.4.6 *Service Areas fronting on exit passageways*** of the *International Building Code* , openings in exit enclosures 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. **1023.5** Where interior exit enclosures are extended to the exterior of a building by an exit passageway, the door assembly from the exit enclosure to the exit passageway shall be protected by a fire door assembly conforming to the requirements in Section 1022.2.1 and **715.4 of the *International Building Code***.	All three exceptions to 101:7.1.3.2.1 item (8) contain compensatory features such as limits on combustibles, sprinkler protection, and rated penetration seals. 101 covers the rating of doors in exit enclosures in **8.3.4**, while E is silent on rating. 101 limits the auto closing feature to low or ordinary hazard, while E allows it without limitation. 101 requires smoke detection activation, while E allows any fire alarm activation (could be manual, heat, or sprinkler). 101 requires "**self closing**" at high hazard occupancy classifications and does not permit automatic closing. **101 protection is commensurate with or exceeds Subpart E** IBC 715 (mandatory ref. in IFC) also allows equivalently rated glazing, shutters. IBC 712 also allows equivalently rated penetration seals. The IBC 402.4.6 exception covers service areas fronting on exit passageways – a feature that is not explicitly covered by E. **IFC protection is commensurate with or exceeds Subpart E**
Each fire door, including its frame and hardware, must be listed or approved by a nationally recognized testing laboratory. Section 1910.155(c)(3)(iv)(A) of this part defines "listed" and § 1910.7 of this part defines a "nationally recognized testing laboratory."	**8.3.3 Fire Doors and Windows.** **8.3.3.1 Openings required to have a fire protection rating by Table 8.3.4.2** shall be protected by approved, listed, labeled fire door assemblies and fire window assemblies and their accompanying hardware, including all frames, closing devices, anchorage, and sills in accordance with the requirements of NFPA 80, *Standard for Fire Doors and Fire Windows,* except as otherwise specified in this Code. **8.3.3.2* Fire protection ratings for products** required to comply with 8.3.3 shall be as determined and reported by a nationally recognized testing agency in accordance with NFPA 252, Standard Methods of Fire *Tests of Door Assemblies; ASTM E*	Fire door assemblies in exit enclosures shall comply with Section 715.4.4 of the ***International Building Code***. Elevators shall not open into an exit enclosure.	101 addresses fire windows in addition to fire doors. 101 specifies test method in addition to nationally recognized testing laboratory. **101 protection is commensurate with or exceeds Subpart E** IBC 715.4 covers the rating of doors in exit enclosures, while E is silent on rating. IBC 715.4.7 requires doors to be self- or automatic closing.

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	2074, Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies; UL 10B, Standard for Fire Tests of Door *Assemblies; or UL 10C, Standard for Positive Pressure Fire Tests of Door Assemblies; or NFPA 257, Standard on Fire Test for Window and Glass Block Assemblies; ASTM E 2010, Standard Test Method for Positive Pressure Fire Tests of Window Assemblies; or UL 9, Standard for Fire Tests of Window Assemblies.*		IBC 715.4.7.3 requires smoke detection activation for most doors, while E allows any fire alarm activation (could be manual, heat, or sprinkler). IBC 715.4 covers listing and test methods. Additionally, it goes on to require labeling. **IFC protection is commensurate with or exceeds Subpart E**
1910.36(b) The number of exit *routes must be adequate.* **Note to paragraph § 1910.36(b) of this section:** For assistance in determining the number of exit routes necessary for your workplace, consult Chapter 7 (‘‘Means of Egress’’) of NFPA 101–2009, Life Safety Code, or Chapter 10 (‘‘Means of Egress’’) of IFC– 2009, International Fire Code.	**4.5.3.1 Number of Means of Egress. Two means of egress, as a minimum, shall be** provided in every building or structure, section, and area where size, occupancy, and arrangement endanger occupants attempting to use a single means of egress that is blocked by fire or smoke. The two means of egress shall be arranged to minimize the possibility that both might be rendered impassable by the same emergency condition.	**1001.1 General.** Buildings or portions thereof shall be provided with a means of egress system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof. Sections 1003 through 1029 shall apply to new construction. Sections 1030 shall apply to existing buildings.	**101 protection is equivalent to Subpart E, in conjunction with sections below** **IFC protection is equivalent to Subpart E, in conjunction with sections below**
1910.36(b)(1) Two exit routes. At least two exit routes must be available in a workplace to permit prompt evacuation of employees and other building occupants during an emergency, except as allowed in paragraph (b)(3) of this section. The exit routes must be located as far away as practical from each other so that if one exit route is blocked by fire or smoke, employees can evacuate using the second exit route.	**7.4.1.1 The number of means of egress from any balcony, mezzanine, story, or** portion thereof shall be not less than two, except under one of the following conditions: [See for exceptions] (1) Where a single means of egress is permitted in Chapter 11 through Chapter 43 (2) Where a single means of egress is permitted for a mezzanine or balcony and the common path of travel limitations of Chapter 12 through Chapter 43 are met **7.5.1.1 Exits shall be located and exit** access shall be arranged so that exits are readily accessible at all times. **7.5.1.1.1* Where exits are not immediately** accessible from an open floor area, continuous passageways, aisles, or corridors leading directly to every exit shall be maintained and shall be arranged to provide access for each occupant to not less than two exits by separate ways of travel, unless otherwise provided in 7.5.1.1.3 and 7.5.1.1.4. **7.5.1.1.2 Exit access corridors shall provide** access to not less than two approved exits, unless otherwise provided in 7.5.1.1.3	**1021.1 Exits from stories.** All spaces within each *story* shall have access to the minimum number of *approved* independent *exits* as specified in **Table 1021.1** based on the *occupant load* of the *story*. For the purposes of this chapter, occupied roofs shall be provided with *exits* as required for stories. **1021.1.1 Exits maintained.** The required number of exits from any story, basement or individual space shall be maintained until arrival at grade or the public way. **1014.3 Common path of egress travel.** In occupancies other than Groups H-1, H-2 and H-3, the common path of egress travel shall not exceed 75 feet. In Group H-1, H-2 and H-3 occupancies, the common path of egress travel shall not exceed 25 feet. For common path of egress travel in Group A occupancies and assembly occupancies in Group E occupancies having fixed seating, see Section 1028.8. **Exceptions:** 1. The length of a common path of egress travel in	This one paragraph of E combines three concepts: number of exits, common path of exit access, and remoteness of exits. 101 additional provisions for remoteness include the 1/2 rule for unsprinklered (7.5.1.3.2) and the 1/3 rule for sprinklered (7.5.1.3.3). Additionally, 101 addresses travel distance in 7.6, while E is silent on this concept. **CAUTION: *101 is more restrictive than IFC/IBC because the measurement in 101 is taken from closest jambs while the IFC take the measurement from centerline of the door opening.*** **101 protection is commensurate with or exceeds Subpart E** This one paragraph of E combines three concepts: number of exits, common path of exit access, and remoteness of exits.

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	and 7.5.1.1.4. **7.5.1.1.3 The requirements of 7.5.1.1.1 and** 7.5.1.1.2 shall not apply where a single exit is permitted in Chapter 12 through Chapter 43. **7.5.1.1.4 Where common paths of travel** are permitted for an occupancy in Chapter 12 through Chapter 43, such common paths of travel shall be permitted but shall not exceed the limit specified. **7.5.1.3.1 Where more than one exit is** required from a building or portion thereof, such exits shall be remotely located from each other and shall be arranged and constructed to minimize the possibility that more than one has the potential to be blocked by any one fire or other emergency condition. **7.5.1.3.5 In existing buildings, where more** than one exit or exit access door is required, such exits or exit access doors shall be permitted to be remotely located in accordance with 7.5.1.3.1.	Group B, F and S occupancies shall not be more than 100 feet, provided that the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1. 2. Where a tenant space in Group B, S and U occupancies has an occupant load of not more than 30, the length of a common path of egress travel shall not be more than 100 feet. 3. The length of a common path of egress travel in a Group I-3 occupancy shall not be more than 100 feet. 4. The length of a common path of egress travel in a Group R-2 occupancy shall not be more than 125 feet, provided that the building is protected throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. **1015.2.1 Two exits or exit access doorways.** Where two exits or exit access doorways are required from any portion of the exit access, the exit doors or exit access doorways shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exit doors or exit access doorways. Interlocking or scissor stairs shall be counted as one exit stairway. **Exceptions:** 1. Where exit enclosures are provided as a portion of the required exit and are interconnected by a 1-hour fire-resistance-rated corridor conforming to the requirements of Section 1017 , the required exit separation shall be measured along the shortest direct line of travel within the corridor. 2. Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 , the separation distance of the exit doors or exit access doorways shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.	Table 1019.1 provides for 2 exits from 1-500 occupants, 3 for 501-1000 and 4 for more than 1000. Additionally, Table 1027.17.2 specifies common path limits for each existing occupancy type, rather that the performance language in E Exception 1 to 1014.3 specifies measurement method. Exception 2 contains compensatory sprinkler protection. Exception 3 applies only to institutional. Exception 4 applies to residential. Exception 1 to 1015.2.1 specifies measurement method. Exception 2 reduces the distance to one-third with compensatory sprinkler protection. Additionally, the IFC addresses travel distance in Section 1016, while E is silent on this concept. **IFC protection is commensurate with or exceeds Subpart E**
1910.36(b)(2) More than two exit *routes. More than* two exit routes must be available in a workplace if the number of employees, the size of the building, its occupancy, or the	**7.4.1.2 The number of means of egress from any story or portion thereof, other than** for existing buildings as permitted in Chapter 12 through Chapter 43, shall be as follows:	**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	101 specifies occupant load thresholds for 3 and 4 exits, while E uses performance language **which is difficult to enforce**.

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arrangement of the workplace is such that all employees would not be able to evacuate safely during an emergency.	(1) Occupant load more than 500 but not more than 1000 — not less than 3 (2) Occupant load more than 1000 — not less than 4	be provided from any space with an occupant load greater than 1,000. **1021.1 Exits from stories.** All spaces within each story shall have access to the minimum number of approved independent exits as specified in Table 1021.1 based on the occupant load of the story. For the purposes of this chapter, occupied roofs shall be provided with exits as required for stories. **1021.1.1 Exits maintained.** The required number of exits from any story shall be maintained until arrival at grade or the public way.	**101 protection is commensurate with Subpart E** **IFC 1015.1.1** requirement is duplicated in 1021.1 IFC table 1021.1 specifies 3 exits for 501-1000 occupants and 4 for more than 1000, while E uses performance language. **IFC protection is commensurate with Subpart E**
1910.36(b)(3) A single exit route. A single exit route is permitted where the number of employees, the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would be able to evacuate safely during an emergency.	**7.4.1.1** The number of means of egress from any balcony, mezzanine, story, or portion thereof shall be not less than two, except under one of the following conditions: (1) Where a single means of egress is permitted in Chapter 11 through Chapter 43 (2) Where a single means of egress is permitted for a mezzanine or balcony and the common path of travel limitations of Chapter 12 through Chapter 43 are met	**1021.2 Single exit.** Only one exit shall be required from Group R3 occupancy buildings or from stories of other buildings as indicated in Table 1021.2. Occupancies shall be permitted to have a single exit in buildings otherwise required to have more than one exit if the areas served by the single exit do not exceed the limitations of Table 1021.2. Mixed occupancies shall be permitted to be served by single exits provided each individual occupancy complies with the applicable requirements of Table 1021.2 for that occupancy. Where applicable, cumulative occupant loads from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1. Basements with a single exit shall not be located more than one story below grade plane.	101 Occupancy chapters specify the thresholds and compensatory provisions that are alluded to by the E performance language. Table 1021.2 (not reproduced here) gives specific thresholds (number of stories, number of occupants, and maximum travel distance) for various occupancy types, rather than the performance language in E. **IFC protection is commensurate with Subpart E**
Note to paragraph § 1910.36(b) of this section: For assistance in determining the number of exit routes necessary for your workplace, consult Chapter 7 (''Means of Egress'') of NFPA 101–2009, Life Safety Code, or Chapter 10 (''Means of Egress'') of IFC– 2009, International Fire Code.	**NOTE:** NFPA 101 addresses both new construction and existing construction. Existing construction is directed by Chapter 43 of NFPA 101. Therefore, for MEANS OF EGRESS addressed by Subpart E, the *Life Safety Code* could be used exclusively if recognized by the local AHJ.	**NOTE**: The International Fire Code **(IFC)**is referenced instead of the International Building Code **(IBC)** because the IFC includes existing buildings where the IBC does not. Since the IFC for new construction is directly quoted in the IBC, it would be reasonable to accept compliance with the IBC for new construction but this is not specifically addressed in the revisions to Subpart E	**101 protection is commensurate with Subpart E by reference.** **IFC protection is commensurate with Subpart E by reference.**
1910.36(c) Exit discharge.			Title only – requirements follow
1910.36(c)(1) Each exit discharge must lead directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside.	**7.7 Discharge from Exits.** **7.7.1* Exit Termination. Exits shall** terminate directly, at a public way or at an exterior exit discharge, unless otherwise provided in 7.7.1.2 through 7.7.1.4.	**1027.1 General. Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide direct access to grade. The exit discharge shall not reenter a building. The combined use of Exceptions 1 and 2**	Additionally, 101 addresses discharge through level of exit discharge (7.7.2) or over roofs (7.7.6). Literal application of E would not allow the commonly used option of discharge through level of exit discharge…… and would allow an exit route to end in a walkway,

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	7.7.1.2 The requirement of 7.7.1 shall not apply to interior exit discharge as otherwise provided in 7.7.2. **7.7.1.3 The requirement of 7.7.1 shall not** apply to rooftop exit discharge as otherwise provided in 7.7.6. **7.7.1.4 Means of egress shall be permitted** to terminate in an exterior area of refuge for detention and correctional occupancies as otherwise provided in Chapter 22 and Chapter 23.	**below shall not exceed 50 percent of the number and capacity of the required exits.** **Exceptions:** 1. A maximum of 50 percent of the number and capacity of the exit enclosures is permitted to egress through areas on the level of discharge provided all of the following are met:. . . (***See IFC for Exceptions not reproduced here***) 2. A maximum of 50 percent of the number and capacity of the exit enclosures is permitted to egress through a vestibule provided all of the following are met:..(***See IFC for Exceptions not reproduced here***) 3. Stairways in open parking garages complying with Section 1022.1, Exception 4, are permitted to egress through the open parking garage at their levels of exit discharge. 4. Horizontal exits complying with Section 1025 shall not be required to discharge directly to the exterior of the building.	courtyard, or refuge area even if employees cannot get from there to a public way. **101 protection is commensurate with Subpart E** IFC Exceptions 1 & 2 address discharge through level of exit discharge or through vestibules, with compensatory protection such as sprinkler protection or fire resistance rating. Exception 3 is for open-air parking garages which are not prone to containing heat or smoke. Literal application of E would not allow these commonly used options for discharge…. And would allow an exit route to end in a walkway, courtyard, or refuge area even if employees cannot get from there to a public way. Exception 4 is new in the 2009 IFC to clarify the permissions for horizontal exits which typically do not discharge to the exterior. **IFC protection is commensurate with Subpart E**
1910.36(c)(2) The street, walkway, refuge area, public way, or open space to which an exit discharge leads must be large enough to accommodate the building occupants likely to use the exit route.	**7.7.1.1 Yards, courts, open spaces, or other portions of the exit discharge shall be of the required width and size to provide all occupants with a safe access to a public way.**	**1027.2 Exit discharge capacity.** The capacity of the exit discharge shall be not less than the required discharge capacity of the exits being served. **1027.6 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 at least 5 square feet (0.46 sq m)for each person. 2. The area shall be located on the same lot at least 50 feet (15.240 m) 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.	Street is large enough under 101 **definition (3.3.252)**. For others listed in E, 101 requires public way access. **Public Way** is defined in 101:3.3.204 as "A street, alley, or other similar parcel of land essentially open to the outside air deeded, dedicated, or otherwise permanently appropriated to the public for public use and having a clear width and height of not less than 10 ft". E does not define "large enough" or "likely". **101 protection is equivalent to Subpart E** IFC requires access to a public way or safe dispersal per 1024.6 (including specific size & location requirements in the exception), rather that the performance language in E. E does not define "large enough" or "likely". **IFC protection is commensurate with Subpart E**
1910.36(c)(3) Exit stairs that continue beyond the level on which the exit discharge is located must be interrupted at that level by	**7.7.3 Arrangement and Marking of Exit Discharge** **7.7.3.2** The exit discharge shall be arranged and marked to make	**1022.7 Discharge identification.** A stairway in an exit enclosure shall not continue below its level of exit discharge unless an approved barrier is provided at	101 sets the threshold for an interruption barrier at ½ story, while E uses performance language. **101**

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doors, partitions, or other effective means that clearly indicate the direction of travel leading to the exit discharge.	clear the direction of egress to a public way. Stairs shall be arranged so as to make clear the direction of egress to a public way. Stairs that continue more than one-half story beyond the level of exit discharge shall be interrupted at the level of exit discharge by partitions, doors, or other effective means.	the level of exit discharge to prevent persons from unintentionally continuing into levels below. Directional exit signs shall be provided as specified in Section 1011. **1022.8 Floor identification signs.** A sign shall be provided at each floor landing in exit enclosures connecting more than three stories designating the floor level, the terminus of the top and bottom of the exit enclosure and the identification of the stair 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 enclosure for the fire department. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions.	**protection is commensurate with Subpart E** IFC requires both the interruption barrier and the directional exit signs. Section 1022.8 is new in IFC 2009 and requires floor identification signage to include the level of exit discharge information. IFC gives the threshold at which the interruption barrier is required, while E uses performance language. **IFC protection exceeds Subpart E**
1910.36(d) An exit door must *be unlocked.*	**7.2.1.5 Locks, Latches, and Alarm Devices.**		Title only – requirements follow
1910.36(d)(1) Employees must be able to open an exit route door from the inside at all times without keys, tools, or special knowledge. A device such as a panic bar that locks only from the outside is **permitted** on exit discharge doors.	**7.2.1.5.1 Doors shall be arranged to be** opened readily from the egress side whenever the building is occupied. **7.2.1.5.2 Locks, if provided, shall not** require the use of a key, a tool, or special knowledge or effort for operation from the egress side.	**1008.1.9 Door operations.** Except as specifically permitted by this section egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort. **1008.1.10 Panic and fire exit hardware.** Each door in a means of egress from a Group A or E occupancy having an occupant load of 50 or more and any Group H occupancy shall not be provided with a latch or lock unless it is 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 (1829 mm) wide that contain overcurrent devices, switching devices or control devices with exit access doors must be equipped with panic hardware and doors must swing in the direction of egress *travel*.	The 101 wording “egress side” is more protective than OSHA’s “inside” for courtyard situations. 101 addresses panic hardware details in 7.2.1.7 and requires its use in high risk occupancies, while E only allows its use. **101 protection exceeds Subpart E** The IFC wording “egress side” is more protective than OSHA’s “inside” for courtyard situations. Panic hardware is required by IFC in high-risk occupancies, while E only allows its use. **IFC protection exceeds Subpart E**

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1910.36(d)(2) Exit route doors must be free of any device or alarm that could restrict emergency use of the exit route if the device or alarm fails.	**7.1.9 Impediments to Egress. Any device or alarm installed to restrict the improper** use of a means of egress shall be designed and installed so that it cannot, even in case of failure, impede or prevent emergency use of such means of egress, unless otherwise provided in 7.2.1.6 and Chapters 18, 19, 22, and 23.	**1008.1.4.2 Power-operated doors.** **1008.1.4.4 Access-controlled egress doors.** **1008.1.4.5 Security grilles.** **1008.1.9.4 Bolt locks.** **1008.1.9.7 Delayed egress locks.** These IFC sections give detailed requirements for these commonly used features, rather than the performance language in E.	Additionally, 101 goes on to address in detail power operated doors, delayed egress locks and access controlled doors, rather than the performance language used in E. **101 protection is commensurate with Subpart E** **IFC protection is commensurate with Subpart E**
1910.36(d)(3) An exit route door may be locked from the inside only in mental, penal, or correctional facilities and then only if supervisory personnel are continuously on duty and the employer has a plan to remove occupants from the facility during an emergency.	**7.2.1.5.3 The requirements of 7.2.1.5.1 and 7.2.1.5.2 shall not apply where otherwise provided in Chapter 18 through Chapter 23.** **Chapters 18 & 19 Health Care** **Chapters 20 & 21 Ambulatory Health Care** **Chapters 22 & 23 Detention & Correction**	**1008.1.8.3 Locks and latches.** Locks and latches shall be permitted to prevent operation of doors where any of the following exists: 1. Places of detention or restraint. 2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided: 2.1. The locking device is readily distinguishable as locked, 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background, 2.3. The use of the key-operated locking device is revokable by the fire code official for due cause. 3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface mounted hardware. 4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.	Chapters 18-23 correspond to the facility types in E. All of these chapters have compensatory staff operating procedures. Additionally, 101 goes on to address stair re-entry in 7.2.1.5.7. **101 protection is commensurate with Subpart E** IFC exception 1 is equivalent to E wording. Other exceptions have compensatory protection features, or apply only to residential. Additionally, IFC goes on to address stair re-entry in 1008.8.7. **IFC protection is commensurate with Subpart E**

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1910.36(e) A side-hinged exit door must be used.			Title only – requirements follow
1910.36(e)(1) A side-hinged door must be used to connect any room to an exit route.	**7.2.1.4.1* Any door in a means of egress shall be of the side-hinged or pivoted-**swinging type, and shall be installed to be capable of swinging from any position to the full required width of the opening in which it is installed, unless otherwise specified in 7.2.1.4.1(1) through 7.2.1.4.1(7).	**1008.1.2 Door swing.** Egress doors shall be side-hinged swinging. **Exceptions:** 1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less. 2. Group I-3 occupancies used as a place of detention. 3. Critical or intensive care patient rooms within suites of health care facilities. 4. Doors within or serving a single dwelling unit in Groups R-2 and R-3. 5. In other than Group H occupancies, revolving doors complying with Section 1008.1.4.1. 6. In other than Group H occupancies, horizontal sliding doors complying with Section 1008.1.4.3 are permitted in a means of egress. 7. Power-operated doors in accordance with Section 1008.1.4.2. 8. Doors serving a bathroom within an individual sleeping unit in Group R-1. 9. 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	Additionally, 101 goes on to address width during a door's swing, as well as revolving doors (which would be precluded by literal application of E). **101 protection is commensurate with Subpart E** The 9 IFC exceptions have compensatory features such as limited occupant load, staff procedures, apply only to residential, or apply to commonly used features such as revolving doors, sliding doors, and power operated doors (which would be precluded by literal application of E). **CAVEAT:** The horizontal sliding door in Exception 9 is negated by the OSHA requirement for "side hinged" doors and would not be available in OSHA regulated construction. **IFC protection is commensurate with Subpart E**
1910.36(e)(2) The door that connects any room to an exit route must swing out in the direction of exit travel if the room is designed to be occupied by more than 50 people or if the room is a high hazard area (i.e., contains contents that are likely to burn with extreme rapidity or explode).	**7.2.1.4.2 Doors required to be of the side-hinged or pivoted-swinging type shall swing** in the direction of egress travel under any of the following 1. where serving a room or area with an occupant load of 50 or more, except under the following conditions: (a) Doors in horizontal exits shall not be required to swing in the direction of egress travel where permitted by 7.2.4.3.7.1 or 7.2.4.3.7.2. (b) Smoke barrier doors shall not be required to swing in the direction of egress travel in existing health care occupancies as provided in Chapter 19. 2. Where the door is used in an exit enclosure, unless the door opening serves an individual living unit that opens directly into an exit enclosure 3. Where the door opening serves a high hazard area.	**1008.1.2 Door swing.** Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H occupancy.	101 is slightly more protective (**when the occupant load is exactly 50**). 101 has compensatory staff operating procedures in occupancy chapters. 101 provision applies to all exit enclosures, while E applies only to those served by **more than** 50 occupants. Additionally, 101 goes on to address door force limits in 7.2.1.4.5. **101 protection exceeds Subpart E** IFC is slightly more protective (when the occupant load is exactly 50). Additionally, IFC goes on to address door force limits at the end of section 1008.1.2. **IFC protection exceeds Subpart E**

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1910.36(f) The capacity of an exit route must be *adequate.*			Title only – requirements follow
1910.36(f)(1) Exit routes must support the maximum permitted occupant load for each floor served.	**7.3.1.1 Sufficient Capacity for Occupant Load.** **7.3.1.1.1The total capacity of the means of** egress for any story, balcony, tier, or other occupied space shall be sufficient for the occupant load thereof. **7.3.1.1.2** For other than existing means of egress, where more than one means of egress is required, the means of egress shall be of such width and capacity that the loss of any one means of egress leaves available not less than 50 percent of the required capacity. **7.3.3 Egress Capacity.** **7.3.3.1 Egress capacity for approved** components of means of egress shall be based on the capacity factors shown in Table 7.3.3.1 unless otherwise provided in 7.3.3.2.	**1005.1 Minimum required egress width.** The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components. The width shall not be less than specified elsewhere in this code. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.	101 table 7.3.3.1 gives specific egress width factors depending on occupancy type and sprinkler protection. **101 protection exceeds Subpart E** **IFC table 1005.1 in previous editions of the IFC which permitted reduction of egress width in a building with sprinkler protection has been eliminated. Width reduction is no longer permitted in a sprinkler protected building.** IFC is more stringent than Subpart E on the distribution of the egress capacity when multiple exits are required. **IFC protection exceeds Subpart E**
1910.36(f)(2) The capacity of an exit route may not decrease in the direction of exit route travel to the exit discharge. **Note to paragraph § 1910.36(f) of this section: Information regarding the ''Occupant load'' is located in Chapter 7 ''Means of Egress'' of NFPA 101–2009, Life Safety Code, and in Chapter 10 ''Means of Egress'' of IFC 2009, International Fire Code**	**7.3.4.2 Where a single exit access leads to** an exit, its capacity in terms of width shall be not less than the required capacity of the exit to which it leads. **7.3.4.3 Where more than one exit access** leads to an exit, each shall have a width adequate for the number of persons it accommodates. **7.3.1.2 Occupant Load Factor. The** occupant load in any building or portion thereof shall be not less than the number of persons determined by dividing the floor area assigned to that use by the occupant load factor for that use as specified in Table 7.3.1.2, Figure 7.3.1.2(a), and Figure 7.3.1.2(b).	**1003.6 Means of egress continuity.** The path of egress travel along a means of egress shall not be interrupted by any building element other than a means of egress component as specified in this chapter. Obstructions shall not be placed in the required width of a means of egress except projections permitted by this chapter. The required capacity of a means of egress system shall not be diminished along the path of egress travel.	**101 protection is equivalent to Subpart E** **IFC protection is equivalent to Subpart E**
1910.36(g) An exit route must *meet minimum height and width requirements.*			Title only – requirements follow
1910.36(g)(1) The ceiling of an exit route must be at least seven feet six inches (2.3 m) high. Any projection from the ceiling must not reach a point less than six feet eight inches (2.0 m) from the floor.	**7.1.5* Headroom.** **7.1.5.1 Means of egress shall be designed** and maintained to provide headroom in accordance with other sections of this Code, and such headroom shall be not less than 7 ft 6 in., with projections from the ceiling not less than 6 ft 8 in. ***with a tolerance of -3/4"*** nominal above the finished floor, unless otherwise specified by the following: **(1) In existing buildings, the ceiling** height shall be not less than 7 ft (2135 mm) from the floor, with projections from the ceiling not less than 6 ft 8 in. (2030 mm) nominal above the	**1003.2 Ceiling height.** The means of egress shall have a ceiling height of not less than 7 feet 6 inches. **Exceptions:** 1. Sloped ceilings in accordance with Section 1208.2 of the *International Building Code* . 2. Ceilings of dwelling units and sleeping units within residential occupancies in accordance with Section 1208.2 of the *International Building Code*. 3. Allowable projections in accordance with Section	101 has specific, less stringent provisions for headroom & projections in existing buildings, industrial occupancies (40.2.5.2), stairs, and rooms with varying ceiling height. Literal application of E would preclude these common features. **101 protection is commensurate with Subpart E** IFC has specific, less stringent provisions for headroom &

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	floor. **(2) Headroom in industrial equipment access areas** as provided in 40.2.5.2 shall be permitted. **7.1.5.2** The minimum ceiling height shall be maintained for not less than two-thirds of the ceiling area of any room or space, provided that the ceiling height of the remaining ceiling area is not less than 6 ft 8 in. (2030 mm). **7.1.5.3** Headroom on stairs shall be not less than 6 ft 8 in. (2030 mm) and shall be measured vertically above a plane parallel to, and tangent with, the most forward projection of the stair tread.	1003.3 4. Stair headroom in accordance with Section 1009.2. 5. Door height in accordance with Section 1008.1.1. 6. Ramp headroom in accordance with Section 1010.5.2. 7. The clear height of floor levels in vehicular and pedestrian traffic areas in parking garages in accordance with Section 406.2.2 of the International Building Code. 8. Areas above and below mezzanine floors in accordance with Section 505.1 of the International Building Code. **1003.3 Protruding objects.** Protruding objects shall comply with the requirements of Sections 1003.3.1 through 1003.3.4. **1003.3.1 Headroom.** Protruding objects are permitted to extend below the minimum ceiling height required by Section 1003.2 provided a minimum headroom of 80 inches shall be provided for any walking surface, including walks, corridors, aisles and passageways. Not more than 50 percent of the ceiling area of a means of egress shall be reduced in height by protruding objects. **Exception:** Door closers and stops shall not reduce headroom to less than 78 inches. A barrier shall be provided where the vertical clearance is less than 80 inches high. The leading edge of such a barrier shall be located 27 inches maximum above the floor.	projections for sloped ceilings, residential occupancies, door closers, and door stops. Literal application of E would preclude these common features. **IFC protection is commensurate with Subpart E**
1910.36(g)(2) An exit access must be at least 28 inches (71.1 cm) wide at all points. Where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access.	**7.3.4 Minimum Width.** **7.3.4.1** The width of any means of egress, unless otherwise provided in 7.3.4.1.1 through 7.3.4.1.3, shall be as follows: (1) Not less than that required for a given egress component in this chapter or Chapters 11 through 43 (2) Not less than 36 in. **7.3.4.1.1** The width of exit access that is formed by furniture and movable partitions, that serves not more than six people, and that has a length not exceeding 50 ft shall meet both of the following criteria:	**1005.1 Minimum required egress width.** The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components. **1018.2 Corridor width.** The minimum *corridor* width shall be as determined in Section 1005.1, but not less than 44 inches (1118 mm).	101 basic requirement is 36” (7.3.4.1) – more protective. 101 has specific provisions for furniture and movable partitions (7.3.4.1.1). 101 has specific, less stringent provisions for width for industrial equip access (40.2.5.2), but a compensatory limit on occupant load. **101 protection exceeds or is commensurate with Subpart E**

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	(1) The width shall be not less than 18 in. (455 mm), at and below a height of 38 in. (965 mm), and not less than 28 in. (710 mm) above a height of 38 in. (965 mm). (2) A width of not less than 36 in. (915 mm) for new exit access, and not less than 28 in. (710 mm) for existing exit access, shall be capable of being provided without moving permanent walls. **7.3.4.1.2** In existing buildings, the width of exit access shall be permitted to be not less than 28 in. --- **7.3.4.2** Where a single exit access leads to an exit, its capacity in terms of width shall be not less than the required capacity of the exit to which it leads.	Exceptions: 1. Twenty-four inches - For access to and utilization of electrical, mechanical or plumbing systems or equipment. 2. Thirty-six inches - With a required occupant capacity of less than 50. 3. Thirty-six inches - Within a dwelling unit. 4. Seventy-two inches - In Group E with a *corridor* having a required capacity of 100 or more. 5. Seventy-two inches - In *corridors* and areas serving gurney traffic in occupancies where patients receive outpatient medical care, which causes the patient to be not capable of self-preservation. 6. Ninety-six inches - In Group I-2 in areas where required for bed movement. **1003.6 Means of egress continuity.** The path of egress travel along a means of egress shall not be interrupted by any building element other than a means of egress component as specified in this chapter. Obstructions shall not be placed in the required width of a means of egress except projections permitted by this chapter. The required capacity of a means of egress system shall not be diminished along the path of egress travel.	IFC width is primarily driven by capacity. IFC 1018.2 requires a minimum 44 inch corridor width with reduction to 36 inches where the occupant capacity is not more than 50 (exception 2). 1018.2 Exception 1 is less stringent than E but applies in situations for access to equipment by a few persons - a situation not directly addressed by E. IFC is more stringent in educational and health care occupancies. **IFC protection exceeds or is commensurate with Subpart E**
1910.36(g)(3) The width of an exit route must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route.	**7.3.1.4 Exits Serving More than One Story.** Where an exit serves more than one story, only the occupant load of each story considered individually shall be used in computing the required capacity of the exit at that story, provided that the required egress capacity of the exit is not decreased in the direction of egress travel.	**1004.4 Exiting from multiple levels.** Where exits serve more than one floor, only the occupant load of each floor considered individually shall be used in computing the required capacity of the exits at that floor, provided that the exit capacity shall not decrease in the direction of egress travel. **1004.5 Egress convergence.** Where means of egress from floors above and below converge at an intermediate level, the capacity of the means of egress from the point of convergence shall not be less than the sum of the two floors.	101 is more stringent in situations with convergence from above & below, balconies, or mezzanines. **101 protection exceeds Subpart E** IFC is more stringent in situations with convergence at intermediate levels. **IFC protection exceeds with Subpart E**
1910.36(g)(4) Objects that project into the exit route must not reduce the width of the exit route to less than the minimum width requirements for exit routes.	**7.3.2 Measurement of Means of Egress.** **7.3.2.1 The width of means of egress shall** be measured in the clear at the narrowest point of the egress component under consideration, unless otherwise provided in 7.3.2.2 or 7.3.2.3.	**1003.3.3 Horizontal projections.** Structural elements, fixtures or furnishings shall not project horizontally from either side more than 4 inches over any walking surface between the heights	101 contains allowances for knobs, handrails, door closers, etc., while E is silent. However, the basic 101 corridor width requirements in 7.3.4 are more stringent than E and would result in wider corridors even with

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	7.3.2.2 Projections within the means of egress of not more than 4-1/2 in. (114 mm) on each side shall be permitted at a height of 38 in. (965 mm) and below. **7.3.2.3 In health care and ambulatory** health care occupancies, projections shall be permitted in corridors in accordance with Chapter 18 through Chapter 21. **7.2.1.2.1 Measurement of Clear Width.** **7.2.1.2.3.1 For purposes of determining** minimum door width, the clear width shall be used unless door leaf width is specified. **7.2.1.2.1.1(5) For swinging doors, projections** of not more than 4 in. (100 mm) into the doorway width on the hinge side shall not be considered reductions in width, provided that such projections are for purposes of accommodating panic hardware or fire exit hardware and are located not less than 34 in. above the floor. **7.2.1.2.1.1(6) Projections** exceeding 6 ft 8 in. above the floor shall not be considered reductions in clear width.	of 27 inches and 80 inches above the walking surface. **Exception:** Handrails serving stairs and ramps are permitted to protrude 4.5 inches from the wall. **1003.3.4 Clear width.** Protruding objects shall not reduce the minimum clear width of accessible routes. **1008.1.1.1 Projections into clear width. [doors]** There shall not be projections into the required clear width lower than 34 inches above the floor or ground. Projections into the clear opening width between 34 inches and 80 inches above the floor or ground shall not exceed 4 inches. **Exception:** Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.	these allowances. **101 protection is commensurate with Subpart E** IFC contains allowances for knobs, handrails, door closers, etc., while E is silent. However, the basic IFC corridor width requirements are more stringent than E and would result in wider corridors even with these allowances. **IFC protection is commensurate with Subpart E**
1910.36(h) An outdoor exit *route is permitted. Each outdoor exit* route must meet the minimum height and width requirements for indoor exit routes and must also meet the following requirements: ***1910.36(h)(1) through 1910.36(h)(4)***	**7.5.3 Exterior Ways of Exit Access.** **7.5.3.1 Exit access** shall be permitted to be by means of any exterior balcony, porch, gallery, or roof that conforms to the requirements of this chapter. **7.2.2.6 Special Provisions for Outside Stairs.** **7.2.2.6.1 Access.** Where approved by the authority having jurisdiction, outside stairs shall be permitted to lead to roofs of other sections of a building or an adjoining building where the construction is fire resistive and there is a continuous and safe means of egress from the roof. (See also *7.7.6.)*	**1019.1 Balconies used for egress** purposes shall conform to the same requirements as *corridors* for width, headroom, dead ends and projections. **SECTION 1026 - EXTERIOR EXIT RAMPS AND STAIRWAYS**	101 treats exterior egress height & width the same as interior. **101 protection exceeds Subpart E** Height & width of balconies is covered by IFC the same as interior corridors, plus section 1026 gives ramp and stair details. **IFC protection exceeds Subpart E**
1910.36(h)(1) The outdoor exit route must have guardrails to protect unenclosed sides if a fall hazard exists.	**7.1.8* Guards.** Guards in accordance with 7.2.2.4 shall be provided at the open sides of means of egress that exceed 30 in. (760 mm) above the floor or grade below.	**1013.1 Where required.** Guards shall be located along open-sided walking surfaces, mezzanines, industrial equipment platforms, stairways, ramps and landings that are located more than 30 inches above the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Guards shall be adequate in strength and attachment in accordance with Section 1607.7 of the International Building Code.	101 requires guards for both indoor and outdoor exit routes. **101 protection exceeds Subpart E** IFC requires guards for both indoor and outdoor exit routes. **IFC protection exceeds Subpart E**
1910.36(h)(2) The outdoor exit route must be covered if snow or ice is likely to	**7.1.10.1* General. Means of egress** shall be continuously maintained free of all obstructions or impediments to full instant	**1030.3 Obstructions.** A means of egress shall be free from obstructions that	101 text is general and applies to more situations than E. 101 Annex mentions snow & ice specifically.

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accumulate along the route, unless the employer can demonstrate that any snow or ice accumulation will be removed before it presents a slipping hazard.	use in the case of fire or other emergency. **A.7.1.10.1 A proper means of egress allows** unobstructed travel at all times. Any type of barrier including, but not limited to, the accumulations of snow and ice in those climates subject to such accumulations is an impediment to free movement in the means of egress.	would prevent its use, including the accumulation of snow and ice. **1009.6.2 Outdoor conditions.** Outdoor stairways and outdoor approaches to stairways shall be designed so that water will not accumulate on walking surfaces.	**101 protection exceeds Subpart E** Both IFC end E take a performance oriented approach to snow & ice protection. Additionally, the IFC goes on to regulate the design of stairs & their approaches for water runoff. **IFC protection exceeds Subpart E**
1910.36(h)(3) The outdoor exit route must be reasonably straight and have smooth, solid, substantially level walkways.	**7.1.6.3 Level.** Walking surfaces shall comply with the following: (1) Walking surfaces shall be nominally level. (2) The slope of a walking surface in the direction of travel shall not exceed 1 in 20, unless the ramp requirements of 7.2.5 are met. (3) (3) The slope perpendicular to the direction of travel shall not exceed 1 in 48.	**1003.4 Floor surface**. Walking surfaces of the means of egress shall have a slip resistant surface and be securely attached.	101 does not use the undefined terms “reasonably” and “substantially” which are noted in NFPA’s Manual of Style as possible unenforceable and vague term to be avoided in their standards. 101 provisions apply indoors & outdoors. **101 protection exceeds Subpart E** IFC does not use the vague, undefined, and hard to enforce terms “reasonably” and “substantially”. E does not define these terms. IFC provision applies indoors & outdoors. **IFC protection exceeds Subpart E**
1910.36(h)(4) The outdoor exit route must not have a dead-end that is longer than 20 feet (6.2 m).	**7.5.3.4 Exterior exit access shall be** arranged so that there are no dead ends in excess of those permitted for **dead-end corridors** in Chapter 11 through Chapter 43.	**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 feet in length. **Exceptions:** 1. In occupancies in Group I-3 of Occupancy Condition 2, 3 or 4 (see Section 202) the dead end in a corridor shall not exceed 50 feet). 2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, R-4, S and U, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of dead-end corridors shall not exceed 50 feet. 3. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.	101 addresses both indoor and outdoor dead ends. Some chapters allow dead ends greater than20 ft, with compensatory protection or use limitations. Note that the compensatory features for the 20 foot dead end are not available in Subpart E. **101 protection exceeds or is commensurate with Subpart E** IFC addresses both indoor and outdoor dead ends. Exceptions have compensatory features such as sprinkler protection, staff procedures, and extra width. **IFC protection exceeds or is commensurate with Subpart E**
1910.37(a) The danger to *employees must be minimized.*			Title only – requirements follow

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1910.37(a)(1) Exit routes must be kept free of explosive or highly flammable furnishings or other decorations.	**7.1.10.2 Furnishings and Decorations in Means of Egress.** **7.1.10.2.**1 No furnishings, decorations, or other objects shall obstruct exits, access thereto, egress therefrom, or visibility thereof.	**801.1 Scope.** The provisions of this chapter shall govern interior finish, interior trim, furniture, furnishings, decorative materials and decorative vegetation in buildings. . . .	101 covers obstructions other than explosives or highly flammable items. Additionally, 101 goes on to regulate interior finish in Chapter 10. **101 protection exceeds Subpart E** IFC covers much more than furnishings – most notably interior finish. **IFC protection exceeds Subpart E**
1910.37(a)(2) Exit routes must be arranged so that employees will not have to travel toward a high hazard area, unless the path of travel is effectively shielded from the high hazard area by suitable partitions or other physical barriers.	**7.11 Special Provisions for Occupancies with High Hazard Contents.** See Section 6.2. **7.11.1 Where the contents are classified as high hazard**, exits shall be provided and arranged to allow all occupants to escape from the building or structure, or from the hazardous area thereof, to the outside or to a place of safety with a travel distance of not more than 75 ft (23 m), measured as required in 7.6.1, unless otherwise provided in 7.11.2. **7.5.2 Impediments to Egress. See also** 7.1.9 and 7.2.1.5. **7.5.2.1* Access to an exit shall not be through** kitchens, storerooms other than as provided in Chapter 36 and Chapter 37, restrooms, workrooms, closets, bedrooms or similar spaces, or other rooms or spaces subject to locking, unless passage through such rooms or spaces is permitted for the occupancy by Chapter 18, 19, 22, or 23.	**1014.2 Egress through intervening spaces.** Egress through intervening spaces shall comply with this section. 1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas are accessory to the area served, are not a Group H [high hazard] occupancy and provide a discernible path of egress travel to an exit. **Exception:** Means of egress are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.	101 does not use the terms 'effectively" or "suitable", which are both noted in NFPA's Manual of Style as possible unenforceable and vague terms to be avoided in their standards. E does not define these terms. **101 protection is commensurate with Subpart E** IFC does not use the vague and hard to enforce terms 'effectively" or "suitable". E does not define these terms. Item 2 under IFC 1014.2 corresponds to 1910.37(a)(3) – see below. **IFC protection is commensurate with Subpart E**
1910.37(a)(3) Exit routes must be free and unobstructed. No materials or equipment may be placed, either permanently or temporarily, within the exit route. The exit access must not go through a room that can be locked, such as a bathroom, to reach an exit or exit discharge, nor may it lead into a dead-end corridor. Stairs or a ramp must be provided where the exit route is not substantially level.	**7.1.10 Means of Egress Reliability.** **7.1.10.1* General.** Means of egress shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency. **7.5.2 Impediments to Egress. See also 7.1.9 and 7.2.1.5.** **7.5.2.1 Access to an exit** shall not be through kitchens, storerooms other than as provided in Chapter 36 and Chapter 37, restrooms, workrooms, closets, bedrooms or similar spaces, or other rooms or spaces subject to locking, unless passage through such rooms or spaces is permitted for the occupancy by Chapter 18, 19, 22, or 23. **7.5.1.2 Corridors shall provide exit access** without passing through any intervening rooms other than corridors, lobbies, and other spaces permitted to be open to the corridor, unless	**1030.1 General.** The means of egress for buildings or portions thereof shall be maintained in accordance with this section. **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 areas served by such exits are occupied. Security devices affecting means of egress shall be subject to approval of the fire code official. **315.2.2 Means of egress.** Combustible materials shall not be stored in exits or exit enclosures.	101 exceptions contain compensatory use conditions. 101 allows MOE components other than stairs and ramps. One is more protective (smokeproof enclosures). Others (horizontal exits, ladders, slide escapes, and alternating tread devices) are equivalent based on limitations on their use or they reflect new technology. **101 protection is commensurate with or exceeds Subpart E** Item 1 under IFC 1014.2 corresponds to 1910.37(a)(2) – see above.

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	otherwise provided in 7.5.1.2.1 and 7.5.1.2.2. **7.5.1.2.1 Approved existing** corridors that require passage through a room to access an exit shall be permitted to continue to be used, provided that the following criteria are met: (1) The path of travel is marked in accordance with Section 7.10. (2) Doors to such rooms comply with 7.2.1. (3) Such arrangement is not prohibited by the applicable occupancy chapter. **7.5.1.2.2 Corridors** that are not required to be fire resistance rated shall be permitted to discharge into open floor plan areas. **7.1.7 Changes in Level in Means of Egress.** **7.1.7.1 Changes in level in means of egress** shall be achieved by an approved means of egress where the elevation difference exceeds 21 in. (535 mm). **7.1.7.2 Changes in level in means of** egress not in excess of 21 in. (535 mm) shall be achieved either by a ramp complying with the requirements of 7.2.5 or by a stair complying with the requirements of 7.2.2. *[7.1.7.2 Requires a minimum tread depth of 13" where the change in level is 21" or less. The IFC requires a "sloped surface" where the change is 12" or less.]*	**1014.2 Egress through intervening spaces.** 2. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes. **Exceptions:** 1. Means of egress are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit. 2. Means of egress are not prohibited through stockrooms in Group M occupancies when all of the following are met: 2.1. The stock is of the same hazard classification as that found in the main retail area; 2.2. Not more than 50 percent of the exit access is through the stockroom; 2.3. The stockroom is not subject to locking from the egress side; and 2.4. There is a demarcated, minimum 44-inchwide (1118 mm) aisle defined by full or partial height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the exit without obstructions. 3. An exit access shall not pass through a room that can be locked to prevent egress. 4. Means of egress from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms. **1003.5 Elevation change.** Where changes in elevation of less than 12 inches exist in the means of egress, sloped surfaces shall be used. Where the slope is greater than one unit vertical in 20 units horizontal (5-percent slope), ramps complying with Section 1010 shall be used. Where the difference in elevation is 6 inches or less, the ramp shall be equipped with either handrails or floor finish materials that contrast with adjacent floor finish materials.	Exception 1 is for residential. Exception 2 allows for egress through mercantile storage rooms, with compensatory features. Exception 3 addresses locking. Exception 4 is for residential. IFC does not allow single or double step stairs in most cases, which is more protective. **IFC protection is commensurate with or exceeds Subpart E**
1910.37(a)(4) Safeguards designed to protect employees during an emergency (e.g., sprinkler systems, alarm systems, fire doors, exit lighting) must be in proper working order	**4.5.8 Maintenance.** **Whenever or wherever any device, equipment, system, condition,** arrangement, level of protection, or any other feature is required for compliance with the provisions of this Code, such	**107.1 Maintenance of safeguards.** Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, or any other feature is required for compliance with the	Together these 101 sections cover the E requirement for safeguards.

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at all times.	device, equipment, system, condition, arrangement, level of protection, or other feature shall thereafter be maintained, unless the *Code* exempts such maintenance. **4.6.13 Maintenance, Inspection, and Testing.** **4.6.13.1 Whenever or wherever any device,** equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature is required for compliance with the provisions of this Code, such device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature shall thereafter be continuously maintained in accordance with applicable NFPA requirements or requirements developed as part of a performance-based design, or as directed by the authority having jurisdiction.	provisions of this code, or otherwise installed, such device, equipment, system, condition, arrangement, level of protection, or other feature shall thereafter be continuously maintained in accordance with this code and applicable referenced standards. **107.4 Rendering equipment inoperable.** Portable or fixed fire-extinguishing systems or devices and fire-warning systems shall not be rendered inoperative or inaccessible except as necessary during emergencies, maintenance, repairs, alterations, drills or prescribed testing.	**101 protection is equivalent to Subpart E** Additionally, IFC goes on to address system testing. IFC allows for necessary outages. Literal application of E precludes this. **IFC protection is equivalent to Subpart E**
1910.37(b) Lighting and marking must be *appropriate.*			Title only – requirements follow
1910.37(b)(1) Each exit route must be adequately lighted so that an employee with normal vision can see along the exit route.	**4.5.3.3 Awareness of Egress System**. Every exit shall be clearly visible, or the route to reach every exit shall be conspicuously indicated. Each means of egress, in its entirety, shall be arranged or marked so that the way to a place of safety is indicated in a clear manner. **7.8 Illumination of Means of Egress.** **7.8.1 General.** **7.8.1.1* Illumination of means of egress** shall be provided in accordance with Section 7.8 for every building and structure where required in Chapter 11 through Chapter 43 **7.8.1.2 Illumination of means of egress** shall be continuous during the time that the conditions of occupancy require that the means of egress be available for use, unless otherwise provided in 7.8.1.2.2. **7.8.1.2.2 Automatic, motion sensor–type lighting switches** shall be permitted within the means of egress, provided that the switch controllers are equipped for fail-safe operation, the illumination timers are set for a minimum 15-minute duration, and the motion sensor is activated by any occupant movement in the area served by the lighting units.	**1006.1 Illumination required.** The means of egress, including the exit discharge, shall be illuminated at all times the building space served by the means of egress is occupied. **Exceptions:** 1. Occupancies in Group U. 2. Aisle accessways in Group A. 3. Dwelling units and sleeping units in Groups R-1, R-2 and R-3. 4. Sleeping units of Group I occupancies. **1006.2 Illumination level.** The means of egress illumination level shall not be less than 1 foot-candle (11 lux) at the walking surface level. **Exception:** For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface level is permitted to be reduced during performances to not less than 0.2 foot-candle (2.15 lux), provided that the required illumination is automatically restored upon activation of a premises' fire alarm system where such system is provided.	101 does not use the undefined term "adequately" – it is noted in NFPA's Manual of Style as a possible unenforceable and vague term to be avoided in their standards. Additionally, 101 goes on to address emergency lighting (7.9) in addition to ordinary illumination. 101 allows equivalent alternative based on contemporary technology. **101 protection exceeds Subpart E** IFC does not use the vague and hard to enforce term "adequately", which is not defined by E. IFC specifies the minimum illumination levels, rather than the performance language in E. Additionally, IFC goes on to address emergency lighting (1006.3) in addition to ordinary illumination. **IFC protection exceeds Subpart E**
1910.37(b)(2) Each exit must be clearly visible and marked by a sign reading "Exit."	**7.10 Marking of Means of Egress.** **7.10.1 General.**	**1011.1 Where required.** Exits and exit access doors shall be marked by an	The 101 occupancy chapters specify thresholds below which exit marking would not affect life safety, rather than

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	7.10.1.1 Where Required. Means of egress shall be marked in accordance with Section 7.10 where required in Chapter 11 through Chapter 43. **7.10.1.2 Exits.** **7.10.1.2.1 Exits, other than main exterior exit doors that obviously and clearly are identifiable as exits**, shall be marked by an approved sign that is readily visible from any direction of exit access. **7.10.3*** **7.10.3.1 Signs required by 7.10.1 and 7.10.2** shall read as follows in plainly legible letters, or other appropriate wording shall be used: **EXIT**	approved exit sign readily visible from any direction of egress travel. Access to exits shall be marked by readily visible exit signs in cases where the exit or the path of egress travel is not immediately visible to the occupants. Exit sign placement shall be such that no point in a corridor is more than 100 feet (30 480 mm) or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign. **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 sleeping areas in occupancies in Group I-3. 5. 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.	the performance language in E. 101 does not require marking where it would serve no purpose. **101 protection is commensurate with Subpart E** See discussion of graphics under 1910.37 (b)(7). The IFC exceptions specify thresholds below which exit marking would not affect life safety, rather than the performance language in E. **IFC protection exceeds or is commensurate with Subpart E**
1910.37(b)(3) Each exit route door must be free of decorations or signs that obscure the visibility of the exit route door.	**7.2.1.1.2 Every door and every principal entrance that is required to serve as an exit** shall be designed and constructed so that the path of egress travel is obvious and direct. Windows that, because of their physical configuration or design and the materials used in their construction, have the potential to be mistaken for doors shall be made inaccessible to the occupants by barriers or railings. **7.1.10.2.1 No furnishings, decorations, or other objects** shall obstruct exits, access thereto, egress therefrom, or visibility thereof. **7.1.10.2.2 No obstruction** by railings, barriers, or gates shall divide the means of egress into sections appurtenant to individual rooms, apartments, or other occupied spaces. Where the authority having jurisdiction finds the required path of travel to be obstructed by furniture or other movable objects, the authority shall be permitted to require that such objects be secured out of	**1030.4 Exit signs.** Exit signs shall be installed and maintained in accordance with Section 1011 . Decorations, furnishings, equipment or adjacent signage that impairs the visibility of exit signs, creates confusion or prevents identification of the exit shall not be allowed. **1030.6 Furnishings and decorations.** Furnishings, decorations or other objects shall not be placed so as to obstruct exits, access thereto, egress therefrom, 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. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of exit.	101 provisions apply to egress components other than doors. 101 prohibits certain specific items. **101 protection exceeds Subpart E** IFC provisions apply to egress components other than doors, and also require exit signs to remain unobstructed. **IFC protection exceeds Subpart E**

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	the way or shall be permitted to require that railings or other permanent barriers be installed to protect the path of travel against encroachment. **7.1.10.2.3 Mirrors shall not be placed** on exit doors. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of egress.		
1910.37(b)(4) If the direction of travel to the exit or exit discharge is not immediately apparent, signs must be posted along the exit access indicating the direction of travel to the nearest exit and exit discharge. Additionally, the line- of-sight to an exit sign must clearly be visible at all times.	**7.10.1.5.1 Access to exits shall be** marked by approved, readily visible signs in all cases where the exit or way to reach the exit is not readily apparent to the occupants. **7.10.1.5.2* New sign placement** shall be such that no point in an exit access corridor is in excess of the rated viewing distance or 100 ft (30 m), whichever is less, from the nearest sign. **7.10.2 Directional Signs. A sign** complying with 7.10.3 with a directional indicator showing the direction of travel shall be placed in every location where the direction of travel to reach the nearest exit is not apparent.	**1011.1 Where required, Access to exits shall be marked by readily visible exit signs in cases where the exit or the path of egress travel is not immediately visible to the occupants.**	**101 protection is equivalent to Subpart E** **IFC protection is equivalent to Subpart E**
1910.37(b)(5) Each doorway or passage along an exit access that could be mistaken for an exit must be marked "**Not an Exit**" or similar designation, or be identified by a sign indicating its actual use (e.g., closet).	**7.10.8.3 No Exit.** **7.10.8.3.1 Any door, passage, or stairway** that is neither an exit nor a way of exit access and that is located or arranged so that it is likely to be mistaken for an exit shall be identified by a sign that reads as follows: **NO EXIT**	**SECTION 1011 - EXIT SIGNS** **1011.1 Where required.** Exits and exit access doors shall be marked by an approved exit sign readily visible from any direction of egress travel. Access to exits shall be marked by readily visible exit signs in cases where the exit or the path of egress travel is not immediately visible to the occupants. Exit sign placement shall be such that no point in a corridor is more than 100 feet (30 480 mm) or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign. **1011.5.3 Power source.** Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27 of the ***International Building Code.***	**101 protection is equivalent to Subpart E** The IFC has detailed requirements & prohibitions to help identify and distinguish means of egress doors. Many of these exceed E requirements and include: • Max. 100' between exit signs in 1011.1. • 90 minutes of emergency power in 1011.5.3. • Distinguishable doors in 1008.1 • Prohibition against mirror, curtains, decorations, etc. on doors in 1008.1 • Evacuation plans for many occupancies in 404. • Drills for many occupancies to familiarize employees with exits in 405. • Employee evacuation training for many occupancies in 406. The E requirements for Emergency Action Plans are only invoked in limited occupancies when referenced by another standard. The additional IFC requirements address the hazard of mistaking exits without the extra signage required by E. Both methods achieve the same level of safety. **IFC protection is Commensurate with Subpart E**

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		Exception: Approved exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system. **1008.1 Doors.** Means of egress doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.	**Also see in IFC:** • **SECTION 404** - FIRE SAFETY AND EVACUATION PLANS • **SECTION 405** - EMERGENCY EVACUATION DRILLS • **SECTION 406** - EMPLOYEE TRAINING AND RESPONSE PROCEDURES
1910.37(b)(6) Each exit sign must be illuminated to a surface value of at least five foot-candles (54 lux) by a reliable light source and be distinctive in color. Self-luminous or electroluminescent signs that have a minimum luminance surface value of at least .06 footlamberts (0.21 cd/m2) are permitted.	**7.10.5.2.1 Every sign required to be illuminated by 7.10.6.3, 7.10.7, and 7.10.8.1** shall be continuously illuminated as required under the provisions of Section 7.8, unless otherwise provided in 7.10.5.2.2. **7.10.5.2.2* Illumination for signs shall be** permitted to flash on and off upon activation of the fire alarm system. **7.10.6.3* Level of Illumination. Externally** illuminated signs shall be illuminated by not less than 5 ft-candles (54 lux) at the illuminated surface and shall have a contrast ratio of not less than 0.5. **7.10.7.2* Photoluminescent Signs.** The face of a photoluminescent sign shall be continually illuminated while the building is occupied. The illumination levels on the face of the photoluminescent sign shall be in accordance with its listing. The charging illumination shall be a reliable light source, as determined by the authority having jurisdiction. The charging light source shall be of a type specified in the product markings.	**1011.4 Internally illuminated exit signs.** Internally illuminated exit signs shall be listed and labeled and shall be installed in accordance with the manufacturer's instructions and Chapter 27 of the *International Building Code* . Exit signs shall be illuminated at all times. **1011.5 Externally illuminated exit signs.** **1011.5.2 Exit sign illumination.** The face of an exit sign illuminated from an external source shall have an intensity of not less than 5 foot-candles (54 lux). **4604.3 Exit sign illumination.** **Exception:** Approved self-luminous signs that provide evenly illuminated letters shall have a minimum luminance of 0.06 foot-lamberts (0.21 cd/m 2).	**7.10.7.1** Allows listed internally illuminated signs. The light level of internally illuminated signs is addressed by 101 through their listing (7.10.7.1). **7.10.7.2** Allows photoluminescent signs which requires building lighting to be switched on at least 1 hour prior to building occupancy. **101 protection is equivalent to Subpart E** Light level of internally illuminated signs is addressed by IFC through their listing. E allows self-luminous devices as an option. In Chapter 46, IFC allows self-luminous signs in existing buildings. **IFC protection is equivalent to Subpart E**
1910.37(b)(7) Each exit sign must have the word "**Exit**" in plainly legible letters not less than six inches (15.2 cm) high, with the principal strokes of the letters in the word "Exit" not less than three-fourths of an inch (1.9 cm) wide.	**7.10.3 Sign Legend.** **7.10.3.1 Signs required by 7.10.1 and 7.10.2** shall read as follows in plainly legible letters, or other appropriate wording shall be used: **EXIT** **7.10.3.2 Where approved by the authority** having jurisdiction, pictograms shall be permitted.	**1011.5 Externally illuminated exit signs.** **1011.5.1 Graphics.** Every exit sign and directional exit sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than 0.75 inch (19.1 mm) wide. The word "**EXIT**" shall have letters having a width not	101 allows equivalent pictograms. The graphics on internally illuminated signs are addressed by 101 through their listing (7.10.7.1). 101 addresses existing 4" lettering. **101 protection is commensurate with Subpart E**

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	7.10.6 Externally Illuminated Signs. **7.10.6.1 Size of Signs.** **7.10.6.1.1** Externally illuminated signs required by 7.10.1 and 7.10.2, other than approved existing signs, unless otherwise provided in 7.10.6.1.2, shall read EXIT or shall use other appropriate wording in plainly legible letters sized as follows: (1) For new signs, the letters shall be not less than 6 in. (150 mm) high, with the principal strokes of letters not less than in. (19 mm) wide. (1) (2) For existing signs, the required wording shall be permitted to be in plainly legible letters not less than 4 in. (100 mm) high.	less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall not be less than 0.375 inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height. . . .	Graphics of internally illuminated signs are addressed by IFC through their listing (see 1011.4 above). **IFC protection is commensurate with Subpart E**
1910.37(c) ***The fire retardant properties of paints or solutions must be maintained.*** Fire retardant paints or solutions must be renewed as often as necessary to maintain their fire retardant properties.	**4.6.13 Maintenance, Inspection, and Testing.** **4.6.13.1** Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature is required for compliance with the provisions of this *Code*, such device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature shall thereafter be continuously maintained in accordance with applicable NFPA requirements or requirements developed as part of a performance-based design, or as directed by the authority having jurisdiction.	**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.	E also does not require FR paint (or otherwise regulate interior finish), yet requires the properties of FR paint, if provided, to be maintained. NFPA 101 and IFC do not require FR paint but it is permitted to meet Code requirements for fire resistance. 101 and IFC covers much more than FR paint for interior finish. **101 protection exceeds Subpart E** **IFC protection exceeds Subpart E**
1910.37(d) ***Exit routes must be maintained during construction, repairs, or alterations.***			Title only – requirements follow
1910.37(d)(1) During new construction, employees must not occupy a workplace until the exit routes required by this subpart are completed and ready for employee use for the portion of the workplace they occupy.	**4.6.11.2* In buildings under construction, adequate escape facilities** shall be maintained at all times for the use of construction workers. Escape facilities shall consist of doors, walkways, stairs, ramps, fire escapes, ladders, or other approved means or devices arranged in accordance with the general principles of the Code insofar as they can reasonably be applied to buildings under construction.	**1411.1 Stairways required. [during construction]** Where a building has been constructed to a height greater than 50 feet (15 240 mm) or four stories, or where an existing building exceeding 50 feet (15 240 mm) in height is altered, at least one temporary lighted stairway shall be provided unless one or more of the permanent stairways are erected as the construction progresses.	101 and E use performance language. IFC establishes a threshold for stairs, while E uses performance language. **101 protection is equivalent to Subpart E** **IFC protection is equivalent to Subpart E**
1910.37(d)(2) During repairs or alterations, employees must not occupy a workplace unless the exit routes required by this subpart are available and existing fire protections are maintained, or until alternate fire protection is furnished that provides an equivalent level of safety.	**4.6.11.1* Buildings, or portions of buildings**, shall be permitted to be occupied during construction, repair, alterations, or additions only where required means of egress and required fire protection features are in place and continuously maintained for the portion occupied or where alternative life safety measures acceptable to the authority having jurisdiction are in place.	**1411.2 Maintenance.** Required means of egress shall be maintained during construction and demolition, remodeling or alterations and additions to any building. **Exception:** Approved temporary means of egress systems and facilities.	101 extends further than E to cover construction and additions. **101 protection exceeds Subpart E** IFC extends further than E to cover demolition, remodeling, and additions. **IFC protection exceeds Subpart E**

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1910.37(d)(3) Employees must not be exposed to hazards of flammable or explosive substances or equipment used during construction, repairs, or alterations, that are beyond the normal permissible conditions in the workplace, or that would impede exiting the workplace.	**4.6.11.3 Flammable or explosive substances or equipment for repairs or** alterations shall be permitted in a building while the building is occupied if the condition of use and safeguards provided do not create any additional danger or impediment to egress beyond the normally permissible conditions in the building.	**1403 TEMPORARY HEATING EQUIPMENT** **1404 PRECAUTIONS AGAINST FIRE** **1405 FLAMMABLE AND COMBUSTIBLE LIQUIDS.** **1406 FLAMMABLE GASES** **1407 EXPLOSIVE MATERIALS** **1408 OWNER'S RESPONSIBILITY FOR FIRE PROTECTION**	**101 protection is equivalent to Subpart E** These IFC sections go into much more detail than the performance language in E. **IFC protection is equivalent to Subpart E**
1910.37(e) An employee alarm system must be operable. Employers must install and maintain an operable employee alarm system that has a distinctive signal to warn employees of fire or other emergencies, unless employees can promptly see or smell a fire or other hazard in time to provide adequate warning to them. The employee alarm system must comply with § 1910.165.	**4.5.4 Occupant Notification.** **In every building or structure of such size, arrangement, or occupancy that a fire itself** might not provide adequate occupant warning, fire alarm systems shall be provided where necessary to warn occupants of the existence of fire.	**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. **907.1 General.** This section covers the application, installation, performance and maintenance of fire alarm systems and their components in new and existing buildings and structures. The requirements of Section 907.2 are applicable to new buildings and structures. The requirements of Section 907.3 are applicable to existing buildings and structures. **907.2 Where required—new buildings and structures.** An approved manual, automatic or manual and automatic fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.23 and provide occupant notification in accordance with Section 907.6, unless other requirements are provided by another section of this code. . . . **907.3 Where required in existing buildings and structures**. An approved fire alarm system shall be installed in existing buildings and structures where required in Chapter 46**.**	Each 101 chapter prescribes the threshold (based on occupant load and/or facility size) above which a fixed fire alarm system is required, while E uses performance language. **101 protection is commensurate with Subpart E** Subsections 907.2.1 through 907.2.23 indicate which new occupancies require alarm systems (based on size, number of stories, or occupant load), rather than the performance language in E. Subsection 907.3 and Chapter 46 indicates which existing occupancies require alarm systems (based on size, number of stories, or occupant load), rather than the performance language in E. **IFC protection is commensurate with Subpart E**

Occupancy Classification	Occupant Load
ASSEMBLY USE	
Concentrated use, without fixed seating	7 net
Less concentrated use, without fixed seating	15 net
Bench-type seating	1 person/18 linear in.
Fixed seating	Number of fixed seats
Waiting spaces	See 12.1.7.2 and 13.1.7.2.
Kitchens	100
Library stack areas	100
Library reading rooms	50 net
INDUSTRIAL USE	
General and high hazard industrial	100
Special-purpose industrial	NA
STORAGE USE	
In storage occupancies	NA
In mercantile occupancies	300
In other than storage and mercantile occupancies	500

II. Legal Considerations

The purpose of the Occupational Safety and Health Act of 1970 (OSH Act; 29 U.S.C. 651 et al.) is ``to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources * * *." (29 U.S.C. 651(b).) To achieve this goal, Congress authorized the Secretary of Labor to promulgate and enforce occupational safety and health standards, authorizing summary adoption of existing national consensus and established Federal standards within two years of the effective date of the OSH Act (29 U.S.C. 655(a)); authorizing promulgation of standards pursuant to notice and comment (29 U.S.C. 655(b)); and requiring employers to comply with OSHA standards (29 U.S.C. 654(b)).

- An occupational safety or health standard is a standard “which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment.” (29 U.S.C. 652(8).)
- A standard is reasonably necessary or appropriate within the meaning of Section 652(8) if it substantially reduces or eliminates significant risk. In addition, it must be technologically and economically feasible, cost effective, and consistent with prior Agency action, or a justified departure.
- A standard must be supported by substantial evidence, and be better able to effectuate the OSH Act's purposes than any national consensus standard it supersedes. (See 58 FR 1661216616, March 30, 1993.)
- A standard is technologically feasible if the protective measures it requires already exist, can be brought into existence with available technology, or can be created with technology that can reasonably be expected to be developed. (See American Textile Mfrs. Institute v. OSHA, 452 U.S. 490, 513 (1981) (ATMI); American Iron and Steel Institute v. OSHA, 939 F.2d 975, 980 (D.C. Cir. 1991) (AISI).)
- A standard is economically feasible if industry can absorb or pass on the costs of compliance without threatening its long term profitability or competitive structure. See ATMI, 452 U.S. at 530 n. 55; AISI, 939 F.2d at 980.
- A standard is cost effective if the protective measures it requires are the least costly of the available alternatives that achieve the same level of protection. ATMI, 452 U.S. at 514 n. 32; International Union, UAW v. OSHA, 37 F.3d 665, 668 (D.C. Cir. 1994) (LOTO II). Section 6(b)(7) of the OSH Act authorizes OSHA to include among a standard's requirements labeling, monitoring, medical testing, and other information gathering and transmittal provisions. (29 U.S.C. 655(b)(7).) OSHA standards also must be highly protective. (See 58 FR at 1661416615; LOTO II, 37 F.3d at 668669.)
- Finally, whenever practical, standards shall be expressed in terms of objective criteria and of the performance desired. (29 U.S.C. 655(b)(5).)

III. Summary and Explanation of the Proposed Rule

OSHA is proposing a number of actions amending its standards, including revisions to its general industry, maritime, construction, and agricultural standards. A detailed discussion of each of the proposed revisions follows, including a discussion of comments the Agency received in response to the ANPRM. Some of the revisions proposed affect more than one industry. For example, the proposed revisions to the general industry Slings standard also would affect shipyard employment and the construction industry. When proposed revisions in a general industry standard would affect additional industries, OSHA will discuss the revisions fully in the general industry section, and then reference the provisions affected in the sections covering the other industries.
A. Proposed Revisions in General Industry Standards (29 CFR Part 1910) 1. Subpart E

OSHA is proposing several revisions to subpart E. First, OSHA proposes to revise the title of subpart E from ``Means of Egress'' to ``Exit Routes and Emergency Planning.'' The Agency originally proposed to revise the title of subpart E to ``Exit Routes, Emergency Action Plans, and Fire Prevention Plans''(61 FR 47712, September 10, 1996) ; however, this title is missing from the final standard because of a printing error (see 67 FR 67949, November 7, 2002). OSHA now proposes to revise the title to the more concise ``Exit Routes and Emergency Planning.'' As OSHA explained in the preamble to the 2002 final rule, the revised title is part of the Agency's use of plain language that readily conveys the contents of the subpart (67 FR 67949 at 67950).

OSHA also is proposing to revise Sec. 1910.35 to update the edition of the National Fire Protection Association (NFPA) 101, Life Safety Code, that OSHA references therein as a compliance alternative. Currently, Sec. 1910.35 accepts employer compliance with the 2000 edition of NFPA 101 instead of complying with corresponding requirements in Sec. Sec. 1910.34, 1910.36, and 1910.37. The Agency analyzed the provisions of the 2006 edition of NFPA 101 (ID 0137), and preliminarily concluded that the corresponding provisions provide an equal or higher level of worker safety than Sec. Sec. 1910.34, 1910.36, and 1910.37. Therefore, the Agency is proposing to update Sec. 1910.35 by stating that employers who demonstrate compliance with the 2006 version of the Life Safety Code will be deemed to be in compliance with these requirements.

Finally, OSHA is proposing to revise Sec. 1910.35 to add a second compliance alternative that will allow employers demonstrating compliance with the exit route provisions of the International Code Council (ICC), 2006 International Fire Code (IFC), to be in compliance with the corresponding requirements in Sec. Sec. 1910.34, 1910.36, and 1910.37. Also, OSHA is proposing to revise the title of Sec. 1910.35, listed in the Table of Contents in Sec. 1910.33, a definition in Sec. 1910.34, and two notes in Sec. 1910.36, to correspond to the proposed new language to Sec. 1910.35.

The proposed revision to add the IFC compliance alternative receives support from comments made in response to the 2006 ANPRM. In the ANPRM, OSHA explained the reasons for the recommended revision, and requested information on the suitability of allowing both the IFC, as well as ICC's International Building Code (IBC), to serve as an equivalent compliance option. The ANPRM recommendation was in response to a petition by the ICC, which submitted a comparison of the 2003 IBC and IFC provisions and the OSHA requirements. Subsequently, OSHA analyzed the provisions of the newer (2006) editions of the IFC and IBC, and compared them with requirements in Sec. Sec. 1910.34, 1910.36, and 1910.37 (ID 0138). In this analysis, OSHA found that the IFC contains provisions for existing buildings and exit route maintenance, while the IBC does not. These provisions are necessary to achieve equivalency with Sec. 1910.37. Therefore, OSHA determined that the IFC corresponded to the OSHA requirements, and that the IBC did not. This analysis concluded that the corresponding provisions of the IFC provide an equivalent or higher level of worker safety than Sec. Sec. 1910.34, 1910.36, and 1910.37. Therefore, the Agency is proposing to recognize the IFC as a compliance alternative, in addition to the NFPA 101 compliance alternative, thereby providing additional flexibility to employers.

In the ANPRM, OSHA asked if the egress provisions of the ICC codes offer protection equivalent to that required by subpart E. Many commenters responded affirmatively. For example, the Building Owners and Managers Association International (BOMA), which represents thousands of owners and managers of existing commercial properties in North America, stated that it strongly supports this proposed additional compliance option (ID 0121). Further, BOMA stated that the IBC and IFC are ``responsive to not only the health safety and welfare needs of those who lease real estate, but for those who are employers in the industry as well.''

The U.S. General Services Administration (GSA), Public Buildings Service, the landlord of the civilian Federal government, with a total inventory of over 345 million square feet of workspace for a million Federal workers, commented:

> [T]he requirements for egress in the IBC and IFC will satisfy the OSHA rules and clearly demonstrate that a building designed and constructed to the requirements of the IBC and IFC provides equivalent protection to the federal egress requirements. (ID 0130.) A comment from the New York Department of State (ID 0023) included a detailed discussion of the IBC, IFC, and subpart E. This commenter concluded that the combined requirements of these two national model codes provide an equivalent level of protection to all occupants. Many of the subpart E provisions are general, performance oriented requirements, and do not cover conditions in every building. Employers may use a compliance alternative as guidance on specific situations. OSHA believes allowing employers two compliance options compliance with either the NFPA 101 (2006) or the IFC (2006)will give employers additional flexibility to use whichever compliance option best serves their needs, while meeting the level of worker protection provided by OSHA's subpart E rules.

OSHA notes that a number of commenters supporting the proposed revision stated that such a revision would involve a potential cost savings for them because it ``can reduce design and construction delays. * * *" (See, for example, ID 0117.) Other commenters (IDs 0019, 0020) supported the flexibility the revision would provide to employers by allowing them to comply with either NFPA 101 or with [[Page 38649]]
the ICC Codes, explaining that healthcare facilities participating in Medicare and Medicaid used NFPA 101, even in those jurisdictions that use the ICC codes.

The ANPRM also included a question about whether other, alternative national building codes were available that OSHA should consider. Commenters (IDs 0018, 0021, 0023, 0119, 0121) responded that no other building codes are available for OSHA to consider. One commenter (ID 0121) noted, ``Currently, 47 states and the District of Columbia use the IBC, and 42 states and the District of Columbia use the IFC." GSA stated (ID 0130) that they have ``adopted the technical requirements of the IBC and the IFC. * * *"

Opposition to the revision came from the NFPA (IDs 0022, 0134). However, much of NFPA's comment centered on whether the ICC codes provide a level of safety equivalent to NFPA 101, rather than whether compliance with the ICC codes would provide a level of safety equivalent to that required by OSHA in subpart E. As noted previously, OSHA plans to retain and update existing Sec. 1910.35. Thus, the comparison provided by NFPA (ID 0022) of the provisions of NFPA 101 and the ICC codes does not address the issue regarding the ability of the ICC codes to serve as an additional compliance option to OSHA's subpart E.

Another concern raised by the NFPA comments (IDs 0022, 0134) was that the ICC developed the ICC Codes using consensus principles that differed from the consensus principles used to develop NFPA codes. Again, this comment does not address the issue of whether the ICC Codes provide a level of protection equal to that provided by subpart E, regardless of the method of development. While it is true that OSHA, in conformance with section 6(b)(8) of the OSH Act, the National Technology Transfer and Advancement Act of 1995 (NTTAA), and OMB Circular A119, must consider consensus standards in developing its mandatory standards, the Agency is not restricted to the use of consensus standards. OSHA does not plan to promulgate a government unique standard instead of a consensus standard, but to allow compliance alternatives that provide workers with a level of safety that is at least equivalent to the level of safety provided by OSHA's existing subpart E requirements.

The Denver Fire Department (ID 0013) also objected to the proposed revision because the IBC and IFC do not specify minimum exit access widths for every type of occupancy. The Denver Fire Department did not explain how the lack of such specificity would impact worker safety; as noted earlier, OSHA does not believe worker safety would be compromised by including IFC 2006 as a compliance alternative. OSHA notes that both NFPA 101 and the ICC Codes allow exit access widths narrower than the 28inch minimum specified in Sec. 1910.36, but only in limited situations in which the occupancy type and occupant load ensure an equal level of safety.

OSHA believes that most of the information received in response to the ANPRM supports the proposal to allow the 2006 NFPA 101 or the 2006 IFC provisions as independent compliance alternatives to the corresponding requirements in Sec. Sec. 1910.34, 1910.36, and 1910.37. The Agency believes the proposed revisions will increase compliance flexibility, and achieve greater compatibility with many State and local jurisdictions, while maintaining worker protection.