



U.S. Department of Veterans Affairs

Code Comparison of IBC 2006 and NFPA 101 2006

Task Order #006

May 2007



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Introduction

The purpose of IDQ A/E Task Order #006 is to compare the fire and safety requirements of the International Building Code (IBC) 2006 and the National Fire Protection Association (NFPA) 101 – 2006 to:

- find the differences between these two documents in terms of their philosophy, purpose, content and scope; and their implications to the Department of Veterans Affairs
- present all conflicting requirements related to fire and safety issues concerning health care facilities
- develop a Code Policy Document that incorporates the IBC 2006 and NFPA 101 2006 based on an evaluation of those code requirements and the implementation of this code policy to actual projects.

HDR, Inc. in conjunction with Rolf Jenson & Associates, Inc. is pleased to present their findings in reference to this task order. The following sections 3-11 compare various requirements of each code. The comparisons of the two codes include definitions, some occupancy classifications, special occupancy requirements, building heights and areas, types and fire ratings of construction, interior finishes, fire protection systems, and finally, means of egress. Certain building uses that are not generally found at VA facilities are not included in these comparisons. A few examples of these excluded uses are malls, athletic/sporting buildings, mercantile buildings, manufacturing plants and single family homes. Also not included in the comparisons are the IBC occupancy classifications for High-Hazard Group H or Mercantile Group M and their equivalents in the NFPA 101.

Section 2 provides the analysis of the comparisons of the philosophy or approach to fire and safety issues of each code. It also indicates the recommended code policy to be used by the Department of Veterans Affairs to blend the best features of both codes. This recommended strategy will accommodate both the JCAHO constraints and a holistic approach to life safety for the design professional.

Analysis & Recommendations

This analysis has identified the differences between the IBC and NFPA 101 for the Department of Veterans Affairs. Those differences are highlighted in the previous sections. Conceptually, the codes are very different in scope. NFPA 101 primarily addresses construction, protection, and occupancy features necessary to minimize the danger to life from the effects of fire as well as conditions associated with non-fire emergencies. The IBC address a wide range of considerations, including structural strength, stability, sanitation, means of egress, adequate light and ventilation, and energy conservation.. In evaluating the application of these codes for the development of a code policy document, the difference in scope has been considered. Another factor that was considered is that, while other government agencies have flexibility in code selection, VA buildings must meet the requirements of NFPA 101 and documents referenced by NFPA 101 due to the accreditation requirements of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

A code policy document should incorporate a capacity for implementation by a design team and the flexibility to meet future Veterans Affairs program needs. Both the IBC and NFPA 101 incorporate a holistic implementation of fire protection and life safety requirements within the scope of each code, and both codes are revised on a regular basis. Because compliance with NFPA 101 is required for JCAHO accreditation, utilizing NFPA 101 as the starting point for fire and life safety design within the Department of Veterans Affairs appears to be a reasonable choice. For design considerations not addressed by NFPA 101, use of the IBC to provide supplemental criteria would also appear to be reasonable, since the IBC has been selected by the VA as the design basis for other design features (e.g., structural strength, stability, light and ventilation, energy conservation, etc.). For design considerations that are addressed by both NFPA 101 and the IBC, use of the criteria from NFPA 101 and the documents referenced by NFPA 101 would ensure compliance with JCAHO requirements.

An example of a design issue that is treated differently by NFPA 101 and the IBC is the protection of shaft penetrations. Several jurisdictions including the Commonwealth of Virginia have eliminated the requirement for smoke and fire dampers at shaft penetrations as specified in the IBC. In fully sprinklered buildings there is little fire incident history to show that combination smoke/fire dampers at shaft penetrations provides a significant increase to the level of safety for occupants of the building. This smoke damper feature can become a long term maintenance challenge, particularly depending on the number of dampers within a building. When coupled with the favorable historic data of building performance in fire incidents with fully sprinklered facilities, this feature of smoke dampers can appear to be an undue maintenance challenge that results in little to no positive life safety impact.

The preceding issue is eliminated with the use of NFPA 101, which references NFPA 90A. NFPA 90A does not require the fire and smoke dampers specified in the IBC.

In summary, use of NFPA 101 as the starting point for fire and life safety design along with use of the IBC for issues not addressed by NFPA 101, will provide criteria for a safe environment of care for patients and will incorporate those features necessary to meet JCAHO accreditation requirements. This strategy serves to blend the best features of both codes and results in a holistic approach that can be readily utilized by design professionals and that will meet the needs of the VA.

DEFINITIONS: IBC Chapter 2 and NFPA 101 Chapter 3

Each Code document has set aside a separate chapter for definitions of words or terms used through out each respective code. Both documents utilize its Definitions Chapter to define words or terms that may fall outside their generally recognized meaning to the lay community. The definitions of such words or terms are to provide their meanings as used within the context of each Code.

When a word is not found in either Code's Definitions Chapter, that word's meaning is generally recognized as the same as that found in a dictionary of the English language and has its ordinarily accepted meaning as used in the context of the sentence.

The attached comparison does not list definitions of one code that are essentially the same as those of the other. This definitions comparison only addresses either definitions that are found in one code, but not the other, or where the definitions appreciably differ. There are several definitions found in the IBC that are not found in the NFPA 101. There are only two definitions that differ appreciably:

- **Historic Buildings:** The IBC defines as buildings listed or eligible for listing on the National Historic Register for Historic Places. NFPA 101 defines these buildings as those deemed having significance by a local, regional or historic jurisdiction. This difference may affect some of the buildings sited on Veterans Affairs campuses.
- **Design Professional:** The IBC defines the Design *Professional* as a registered or licensed individual in the state where the project is to be constructed. The NFPA 101 defines the Design *Team* as a group of stakeholders in a project. This includes Architects and Engineers as well as other designers that may or may not be registered or licensed. The difference here may be semantics, but it also may affect the Veterans Affairs projects if they should find it necessary to gain permitting from a local jurisdiction.

The analysis of these definitions chapters concludes that generally one word or term used in one code has essentially the same or similar meaning as the other code. Because the definitions are written to supplement and be integral with their respective codes, it is essential that the definitions of one code be referenced and utilized only with that code.

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Terms Defined in Other Codes	201.3	Terms defined in the family of International Codes shall have the meanings ascribed in those codes.
Approved	202	Acceptable to the code official or authority having jurisdiction.
Approved Source	202	An independent person, firm or corporation, approved by the building official, who is competent and experienced in the application of engineering principles to materials, methods or systems analyses.
Areaway	202	A subsurface space adjacent to a building open at the top or protected at the top by a grating or guard.
Attic	202	The space between the ceiling beams of the top story and the roof rafters.
Awning	202	An architectural projection that provides weather protection, identity or decoration and is wholly supported by the building to which it is attached. An awning is comprised of a lightweight, rigid skeleton structure over which a covering is attached.
Building Line	202	The line established by law, beyond which a building shall not extend, except as specifically provided by law.
Building Official	202	The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized agent.
Canopy	202	An architectural projection that provides weather protection, identity or decoration and is supported by the building to which it is attached and at the outer end by not less than one stanchion. A canopy is comprised of a rigid structure over which a covering is attached.
Construction Documents	202	Written, graphic, and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building permit.
Controlled Low-Strength Material	202	A self-compacted, cementitious material used primarily as a backfill in place of compacted fill.
Corrosion Resistance	202	The ability of a material to withstand deterioration of its surface or its properties when exposed to its environment.

NFPA 101 2006	
Section	Requirements
	No related section
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined
	Undefined

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Decorative Materials	202	All materials applied over the building interior finish for decorative, acoustical or other effect, and all other materials utilized for decorative effect, including foam plastics and materials containing foam plastics. Decorative materials do not include floor coverings, ordinary window shades, interior finish and materials .025 inch or less in thickness applied directly to and adhering tightly to a substrate.
Fire Lane	202	A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicle traffic other than fire apparatus.
Grade Floor Opening	202	A window or other opening located such that the sill height of the opening is not more than 44 inches above or below the finished ground level adjacent to the opening.
Habitable Space	202	A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.
Historic Buildings	202	Buildings listed or eligible for listing on National Register for Historic Places or determined historic per local or state law.
Jurisdiction	202	The governmental unit that has adopted this code under due legislative authority.
Light-Frame Construction	202	A type of construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or light gage steel framing members.
Lot Line	202	A line dividing one lot from another; or from a street to any public place.
Marquee	202	A permanent roofed structure attached to and supported by the building and that projects into the public right-of-way.

NFPA 101 2006	
Section	Requirements
	Undefined
	Undefined
	Undefined
	Undefined
3.3.28.8	A building or facility deemed to have historical, architectural, or cultural significance by a local, regional, or national jurisdiction.
	Undefined
	Undefined
	Undefined
	Undefined

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Occupiable Space	202	A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes or in which occupancies are engaged at labor, and which is equipped with means of egress and light and ventilation facilities meeting the requirements of this code.
Owner	202	Any person, agent, firm, or corporation having a legal or equitable interest in the property.
Permit	202	An official document or certificate issued by the authority having jurisdiction which authorizes performance of a specified activity.
Registered Design Professional	202	An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.
Skylight, Unit	202	A factory-assembled, glazed fenestration unit, containing one panel of glazing material that allows for natural light through an opening in the roof assembly while preserving the weather resistant barrier of the roof.
Skylights and Sloped Glazing	202	Glass or other transparent or translucent material installed at a slope of 15 degrees or more from vertical. Glazing material in skylights, including unit skylights, solariums, sunrooms, roofs and sloped walls, are included in this definition.
Sleeping Unit	202	A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.
Story Above Grade	202	Any story having its finished floor surface entirely above grade plane, except that a basement shall be considered a story above grade plane if the floor above the basement is 6 feet above grade plane, or 12 feet above the finished ground level at any point.
Walkway, Pedestrian	202	A walkway used exclusively as a pedestrian traffic way.

NFPA 101 2006	
Section	Requirements
	Undefined
	Undefined
	Undefined
3.3.49	Design team definition is similar, but does not include a registration requirement.
	Undefined
	Undefined
	Undefined
3.3.72.1	Level of exit discharge is similar
	Undefined

OCCUPANCY CLASSIFICATION: IBC Chapter 3 and NFPA 101 Chapter 6

Each code addresses the need for classifying the use of a structure based on its Occupancy and the attendant life safety needs of each classification. The correct classification of the structure with respect to Occupancy is critical since the design factors and patterns of use are unique for each of the occupancies.

Each code generally accounts for each unique use, although each use may not be referred to with the same name of classification. A quick comparison of the Occupancy use groups pertinent to the VA reveals a very close alignment between the two codes in most cases:

- **Assembly:** IBC divides the Assembly group into 5 divisions – A-1 through A-5. Only two are anticipated to be utilized by the VA. The VA would use the IBC classification of A-2 for Cafeterias or Restaurants and A-3 for Exercise rooms, Lecture halls, Libraries and the like. NFPA 101 also has the Assembly occupancy, but does not differentiate between the various types.
- **Business:** Both codes utilize the Business occupancy. Both the IBC and the NFPA 101 define the Business occupancy as the transaction of business other than mercantile.
- **Health Care:**
 1. The IBC places this occupancy into the Institutional group I. It further divides this occupancy into 4 groups: I-1 through I-4. Group I-1 is used for facilities such as Residential board and care, assisted living, convalescent facilities and alcohol and drug centers. Group I-2 is used for hospitals, nursing homes, mental hospitals and detoxification centers. Group I-3 is used for prisons and is not addressed in this document. Group I-4 is used for Day Care centers.
 2. The NFPA 101 divides this use into separate occupancies: Health Care (used for hospitals, limited care facilities and nursing homes), Ambulatory Health Care (outpatient care for emergency or urgent care) and finally Day Care.
 3. Differences: A minor difference between the two codes is that the IBC restricts adult day care to 5 or more adults (Institutional I-4). The NFPA 101 restricts adult day care to 4 or more adults (Day-Care Occupancy). Another difference is also in numbers. The IBC minimum for hospitals is 5 people; for the NFPA 101 it is 4 people.
- **Lodging:** The IBC defines this occupancy as that which contains sleeping units for the occupants who are primarily transient in nature. Its classification is Residential Group R-1. It does not limit the number of occupants. The NFPA 101 defines this occupancy (Lodging or Rooming Houses) as that which provides sleeping accommodations for 16 or fewer persons on either a transient or permanent basis.
- **Residential Board and Care:** The IBC defines this occupancy as that which contains more than two sleeping units for occupants who are primarily permanent in nature (Residential R-2). The IBC reserves the R-4 designation for Residential Care/Assisted Living facilities for more than 5 but less than 16 persons. The IBC classifies Assisted Living facilities of 16 persons and larger as Institutional I-1. The NFPA 101 only restricts this occupancy to 4 or more residents for the purpose of receiving personal care

services. All Assisted living facilities with a population over 4 would be in this classification.

- **Industrial:** Both codes recognize this occupancy as that in which products are manufactured, processed, assembled, mixed, packaged, repaired etc. The IBC further defines it for facilities not classified as High-hazard or Storage. The IBC refers to this occupancy as the Factory Group F or Factory Industrial Group F. The NFPA 101 refers to it as the Industrial Occupancy.
- **Storage:** Both codes utilize the Storage occupancy. The IBC additionally divides this occupancy into groupings, this time according to hazard: Group S-1 is for Moderate-hazard and Group S-2 is for Low-hazard.

With regard to the types of occupancies common to the Department of Veterans Affairs, the International Building Code and the Life Safety Code have minimal differentiation. As previously discussed, the IBC defines hospitals as facilities that serve more than five people, while the NFPA 101 defines the same occupancy as serving four or more people. Such minor differentiations between the two codes should not be construed as major conceptual differences. The comparison of codes should be evaluated with the understanding that each code was developed in holistic manner, and that piecemeal implementation of specific code requirements can pose enhanced challenges to meeting program requirements and achieving design compliance.

There are, however, differences between the two codes that are more than just semantics or variant numbers. There is a major difference in the way each handles the relative hazard of the contents in facilities of the various occupancies.

The IBC allows facilities with low and moderate levels of hazard to remain classified in their original group (see Storage and Factory Industrial above), but as levels of certain materials that pose a physical or health hazard exceed certain quantities in the facility, the facility is then classified as High-hazard Group H occupancy. The IBC goes into great detail classifying these High-hazard contents (Section 307) and provides extensive detailed construction requirements in Section 414 for this Occupancy.

The NFPA 101 allows each facility to retain its occupancy classification, but then assigns a hazard rating to each of the occupancies based on the relative danger of fire, smoke, gases and explosion. These ratings are also referred to as Low, Moderate and High. The code provides for fire separation between the various occupancies and their hazard ratings. The NFPA 101 tables for the fire separation are found in Tables 6.1.14.4.1 (a) and (b) (shown at the end of Chapter 6 of this document).

The important distinction here is that the NFPA 101 does not directly address what constitutes high hazard materials nor does it provide construction requirements for structures housing high hazard materials whereas the IBC does both.

INTERNATIONAL BUILDING CODE 2006

Title	Section	Requirements
Adult Care Facility	308.5.1	Facility providing accommodations, supervision, and personal care for less than 24 hours for more than five adults.
Group I-2	308.3	Hospitals serving more than five people.
Group H-2 Structures	307.4	Facilities containing materials that present a deflagration or accelerated burning hazard
Group H-3 Structures	307.5	Facilities containing materials that present a physical hazard or readily support combustion.
Group H-4 Structures	307.6	Facilities containing health hazard materials.

NFPA 101 2006

Section	Requirements
6.1.6	Ambulatory Healthcare: A building or portion thereof used to provide services or treatment simultaneously to four or more patients that provides, on an outpatient basis.
6.1.5	Healthcare serving four or more people. No related section
	No related section
	No related section

Special Requirements

Chapter 4 of the IBC provides requirements for several specific occupancies such as high rise buildings, atriums, underground buildings, parking garages, heliports, and facilities with hazardous materials. Generally, the IBC addresses these specific occupancies with greater detail than the NFPA 101. In most cases, the NFPA 101 provides no specific guidelines or requirements. Therefore, the IBC is the only applicable reference to these occupancies.

As an example, the NFPA 101 provides no guidance or requirements related to heliports or hazardous materials. The NFPA 101 refers to other NFPA codes and standards including NFPA 45 for laboratories, for greater detail with regards to life safety and fire protection requirements for the specified occupancies.

While both the IBC and NFPA 101 identify requirements for a specified occupancy, minimal, but identifiable differences exist. The IBC has several specific requirements related to atriums such as automatic sprinkler protection and travel distance provisions that are dissimilar to that identified in the NFPA 101. As an example, both codes require automatic sprinkler protection of atriums, however, the IBC provides additional specification as to where sprinklers can be exempted based on the height of an atrium. Conceptually, both codes contain similar provisions for these occupancies although the details differ.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
High Rise buildings	403	Same as 101 with these additions.
Applicability	403.1	Exceptions: Shall not apply to open parking garages, buildings with low-hazard special industrial occupancies and buildings with Group H-2, and H-3 occupancy
Automatic sprinkler system	403.2	Same as 101 with Exception 2: Telecommunications equip. buildings shall not require sprinklers if provided with fire detection system and fire barrier separation of at least 1 hr walls and 2 hr floor/ceiling assemblies
Reduction in fire-resistance rating	403.3 Fire-resistance rating reductions listed.	Reductions listed in 403.3.1 and 403.3.2 shall be allowed in buildings that have sprinkler control valves equipped with supervisory and water-flow initiating devices on every floor.
Type of construction	403.3.1	(1) Buildings less than 420 ft can be reduced from Type IA to Type IB construction, but the FR rating of columns cannot be reduced (2) In other than Groups F-1, M and S-1, Type IB can be reduced to IIA
Shaft enclosures	403.3.2	For buildings less than 420 ft, the required FR rating of fire barriers enclosing vertical shafts , other than exit enclosure and elevator hoistway enclosures shall be reduced to 1 hr where sprinklers are at top and alternate floor levels
Emergency escape and rescue	403.4	Emergency escape and rescue openings required by Section 1026 are not required

Section	Requirements
11.8	
11.8.1.1 referencing 3.3.28.7	Applies to buildings where the floor of an occupiable story is greater than 75 ft. above the lowest level of fire department access
11.8.2	Sprinkler control valve and water flow device shall be provided on every floor
	No related section
	No related section
	No related section
	No related section. Emergency escape and rescue window can be secondary egress in Lodging or rooming houses.

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Fire Command	403.8 referencing 911	Shall be separated by a 1 hr fire barrier with the following features: (5) status indicators and controls for air-handling systems, (6) fire fighter's control panel for smoke control systems (12) schematic building plans, (13) worktable, (14) generator supervision devices
Stairway Door Operation	403.12	Doors other than exit discharge doors permitted to be locked from stairway side, but shall be capable of being unlocked without unlatching from the fire command center
Atrium Use	404 404.2	Floor of atrium shall be used for low hazard uses and only materials approved in accordance with IFC
Automatic sprinkler protection	404.3	Exceptions: (1) Area adjacent or above the atrium need not be sprinklered, provided that portion is separated from atrium by 2 hr rated fire barrier, or horizontal assembly, or both (2) Ceiling of atrium not required to be sprinklered where ceiling is over 55 ft above floor
Standby Power	404.6	Equipment required to provide smoke control shall be connected to a standby power system
Interior Finish	404.7	Interior finish of walls and ceilings shall be no less than Class B with no reduction for sprinklers
Travel Distance	404.8	In other than the lowest level, where required means of egress is through atrium space, the exit access travel distance

NFPA 101 2006	
Section	Requirements
11.8.5	Emergency command center shall be provided in a location approved by fire department
	No related section
8.6.7 (3)	Occupancy within atrium shall be classified as low or ordinary hazard
8.6.7 (4)	Entire building shall be protected by supervised auto. sprinkler system
	No related section
	No related section
	No related section

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
		through the atrium shall not exceed 200 ft
Underground buildings	405	
General	405.1	Applies to building spaces having a floor used for human occupancy more than 30 ft. below the lowest level of exit discharge. Exceptions: Sprinklered one- and two-family dwellings, sprinklered parking garages, fixed guideway transit systems, grandstands, bleachers, etc.
Construction requirements	405.2	The underground portion of the building shall be of Type I construction
Automatic sprinkler system	405.3	Highest level of exit discharge serving underground and all levels shall be equipped with auto. sprinklers
Number of compartments	405.4.1	A building with a floor level more than 60 ft. below level of exit discharge shall be divided into at least two compartments of equal size. Compartmentation shall extend through the highest level serving the underground portion. Exception: Lowest story need not be compartmented if area < 1500 ft ² and occupant load < 10
Smoke barrier penetration	405.4.2	Compartments shall be separated by a smoke barrier. Penetrations between compartments shall be limited to plumbing

Section	Requirements
11.7	
11.7.4.1	Applies to structures in which the floor level is below the level of exit discharge. Structure not considered underground structure if the story is provided, on not less than two sides, with not less than 20 ft ² of emergency access opening above adjoining grade level
11.1.6	Minimum construction requirements shall be in accordance with applicable occupancy chapter
11.7.3.4	Exceptions: No sprinklers needed (1) If occupant load is 50 or less in new structure (2) if occupant load is 100 or less in existing structure (3) if the structure is a single-story underground that is permitted to have a single exit with a common path not greater than 50 ft No related section
	No related section

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
		and electrical piping. Doorways shall be protected by fire door assemblies.
Elevators	405.4.3	Where provided, each compartment shall have direct access to an elevator.
Smoke control system	405.5	Smoke control system shall be provided
Compartment smoke control system	405.5.2	Where compartmentation is required, independent smoke control system is also required. System shall be automatically activated and capable of manual operation
Number of exits	405.8.1	Each floor level provided with min. of two exits. Where compartmentation is required, min. of one exit required from each compartment and an access doorway into adjoining compartment
Standby Power	405.9	A standby power system shall be provided for the following loads: smoke control system, ventilation and automatic fire detection equip. for smokeproof enclosures and fire pumps
Emergency Power	405.10	An emergency power system shall be provided for the following power loads: emergency voice/alarm systems, fire alarm systems, automatic

NFPA 101 2006	
Section	Requirements
	No related section
11.7.4.4	Automatic smoke venting shall be provided where underground structure has following features: (1) Occupant load over 100 persons (2) floor level used for occupancy located more than 30 ft. below lowest exit discharge, or having more than one level below lowest exit discharge (3) Combustible contents, interior finish or construction
	No related section
	No related section
	No related section
11.7.3.5	Underground portions of a structure and all areas traversed in traveling to the exit discharge shall be provided with emergency lighting in accordance with

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
		fire detection systems, elevator car lighting and means of egress and exit sign illumination
Motor-Vehicle-related occupancies	406	
Clear height	406.2.2	Minimum clear height in vehicle and pedestrian traffic areas is seven feet
Ramps	406.2.5	Shall not be considered as required exits unless pedestrian facilities are provided. Vehicle ramps used for vertical circulation as well as parking shall not exceed a slope of 1:15
Floor Surface	406.2.6	Shall be of concrete or non-combustible non-absorbent material. Asphalt permitted at ground level
Construction	406.3.3	Open garages shall be of Type I, II, or IV construction
Area and height	406.3.5	Shall be limited as set in Ch. 5 for S-2
Area and height increases	406.3.6	Area and height can be increased in accordance with the provisions of Section 406.3.6
Ventilation	406.3.12 directing to 406.3.3.1	Shall not be required other than the percentage of openings specified in 403.3.3.1

NFPA 101 2006	
Section	Requirements
	Section 7.9
42.8	
42.8.2.2.6	No related section. 7.1.5.2 applies to measure of egress spaces 7'-6" min. for 2/3 of the ceiling. 1/3 maybe 6'-8" (1) Ramp complying with 7.2.5 shall not be subject to normal vehicular traffic where used as an exit (2) In ramp-type open parking structure, ramp permitted to serve in lieu of 2nd means of egress provided ramp discharges directly outside at street level (3) for parking structures extending 1 level below the level of exit discharge, a vehicle ramp leading to the outside shall be permitted to serve in lieu of second means of egress provided no door or shutter is installed
	No related section
42.8.1.6	42.1.6 No requirement for minimum construction.
	No related section
	No related section
	No related section

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Prohibitions	406.3.13	Not permitted for following uses: (1) vehicle repair work (2) parking of buses, and trucks (3) partial /complete closing of required openings (4) dispensing of fuel
Heights and Areas	406.4.1	Limited to allowable heights and areas in Table 503. Roof parking permitted
Group I-2	407	
Corridors	407.2	Shall be continuous to the exits and separated from other areas in accordance with 407.3
Mental health treatment areas	407.2.3	Shall be permitted to open where (1) area does not exceed 1,500 feet
Secured yards	407.7	Grounds permitted to be fenced and gates permitted to be locked provided areas are at least 50 ft from building and has 30 sq. ft. for bed and litter patients and 6 sq. ft for ambulatory patients
Combustible Storage	413	
Attic, under-floor and concealed spaces	413.2	Shall be protected on the storage side as required for 1 hr rated construction with self-closing, non combustible openings
Hazardous Materials	414	
General	414.1	Section shall apply to buildings and structure occupied for the manufacturing, processing, dispensing, use or storage of hazardous materials
Control areas	414.2	Control areas shall comply with sections 414.2.1 through 414.2.5
Construction requirements	414.2.1	Control areas shall be separated by fire barriers or horizontal assemblies, or both.

NFPA 101 2006	
Section	Requirements
42.8.1.2.2	Parking and repairs must be separated by 1 hour and treated separately as mixed occupancy with industrial occupancy.
	No related section
18 and 19	New and existing healthcare
18.2.5.3	Shall provide access to no less than two approved exits without passing through any intervening rooms or spaces
18.3.6.1 (5)	Shall be permitted to open provided that the space meets criteria
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Percentage of max. allowable quantities	414.2.2	The percentage of hazardous materials per control area permitted at each floor level shall be in accordance with Table 414.2.2
Number	414.2.3	The max. number of control areas within a building shall be in accordance with Table 414.2.3
Fire-resistance rating requirements	414.2.4	The required rating for fire barriers shall be in accordance with Table 414.2.2. Floor construction and the construction supporting the floor shall have a min. 2 hr rating
Ventilation	414.3	Rooms in Group H spaces which may have toxic/flammable fumes or vapors shall be mechanically ventilated in accordance with IFC and IMC
Hazardous Material systems	414.4	Systems involving hazardous materials shall be suitable for intended application
Inside storage, dispensing and use	414.5	Inside storage, dispensing, and use of hazardous materials in excess of max. quantities in Tables 307.1 (1) and 307.1(2) shall be in accordance with sections 414.5.1 through 414.5.5 and the IFC
Outdoor storage, dispensing and use	414.6	Shall be in accordance with IFC. Weather protection shall be provided outside with noncombustible construction and separation distance
Emergency alarms	414.7	Shall be provided for areas used for storage and where materials are being transported through corridors or exit enclosures

NFPA 101 2006	
Section	Requirements
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Groups H-1, H-2, H-3, H-4, and H-5	415	Section applies to the storage and use of hazardous materials in excess of the max. allowable quantities per control area
Hazardous Materials	416.1	
Application of flammable finishes	416	Provisions of this section shall apply to construction, installation and use of buildings and structures, or parts thereof, for the spraying of flammable materials used for painting or similar purposes

NFPA 101 2006	
Section	Requirements
	No related section
	No related section

Building Heights and Areas

Chapter 5 of the IBC identifies height and area requirements for various use group occupancies as a function of construction classification. This portion of the IBC serves to identify how tall and with what floor area a building can be constructed based on the occupancy classification, or classifications contained within the building. This portion of the IBC intends to identify and limit fire area of a building based on a relative classification of its hazard as construed by its occupancy or occupancies within. In essence, this section of the IBC results in quantifying the number of stories and height of a building as well as the per floor and total floor area. This is evaluated through a series of prescriptive evaluations and quantitative calculations.

The NFPA 101 does not address construction classification with any similarities to detail of the IBC. The NFPA 101 does identify construction classifications for some occupancies, but based solely on height of the buildings. Area is not a factor in the NFPA 101 with regard to identifying construction classifications. Additionally, the NFPA 101 does not identify construction classifications for all occupancies. With regard to the Department of Veterans Affairs, hospitals are identified in the NFPA 101 with regard to fire resistance rating requirements and structural elements and can be compared to those requirements in the IBC. However, the two codes use different evaluation parameters (the IBC bases construction classification on height and area parameters while the NFPA 101 bases construction classification for hospitals only on height of the building), such that a direct comparison is not valid.

Both codes address mixed use occupancies. The IBC contains provisions for incidental, accessory, separated, and non-separated mixed occupancies. Incidental occupancies are handled with specific fire protection requirements, either automatic sprinkler protection or fire rated construction or both. Accessory uses are allowed such that the predominant occupancy of a building or floor of a building is not adversely impacted by relatively small applications of other use groups. As an example, accessory uses can comprise up to 10% of a story but not exceed the allowable tabular values for that occupancy as provided within the Table 503 of the IBC. Where there is a greater distribution of uses within a building, options exist for separated and non-separated occupancies. A key element to determining whether or not occupancies are required to be separated is the construction classification of a building. The method of providing the greatest flexibility for the location of various uses within a building is to utilize the non-separated approach, however, this results in the most restrictive construction classification.

The Life Safety Code also addresses mixed occupancies. Several occupancies, such as healthcare do incorporate a concept similar to the IBC's incidental use group provisions. In this circumstance, this specific occupancy chapter identifies specific fire resistance rating requirements for various special use groups such as living rooms, storage rooms. The NFPA 101 does not incorporate a concept of accessory use such that any mixing of occupancies results in the application of separated or non-separated requirements. A key difference between the IBC and NFPA 101 pertains to the non-separated provisions in the IBC, the provisions relevant to an occupancy only pertain to that occupancy area and are not required to be utilized throughout a building. In the NFPA 101, the most stringent requirements for all the occupancies present within the building are to be applied throughout the building.

This application has resulted in confusion for design teams and code officials. The application of the non-separated mixed use provisions of the NFPA 101 would technically require the travel distance provisions for assembly to be applied throughout a building even if that building only

incorporates a small portion as assembly use. In some cases, this can be technically infeasible and, with distinctly different occupancies such as business and healthcare, can become impractical in meeting program requirements.

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
General Building Heights and Areas	Chapter 5*	The provisions of this chapter control the height and area of structures hereafter erected and additions to existing structures.
General Address Numbers	501 501.2	Building should have approved address numbers, clearly labeled in plain view. Numbers must contrast background, be Arabic numerals or Alphabetical numbers, and comply with the listed letter dimensions.
General Height and Area Limitations	503	
General	503.1	Height and area requirements determined by use of building and cannot exceed limits listed in Table 503. Each portion bounded by fire walls can be considered a separate building.
Allowable Height and Building Areas	Table 503	List of height limitations above grade plane and area limitations as determined by the definition of "Area, building," per story
Special Industrial Occupancies	503.1.1	Buildings and structures designed to house special industrial processes that require large areas and unusual heights, shall be exempt from the height and area limitations of Table 503.
Buildings on Same Lot	503.1.2	
Type I Construction	503.1.3	
Height General	504 504.1	

NFPA 101 2006	
Section	Requirements
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Automatic Sprinkler System Increase	504.2	
Roof Structures	504.3	
Mezzanines	505	
Area Limitation	505.2	Aggregate area of a mezzanine within a room shall not exceed one-third of floor area. Enclosed portion of a room not included in determination of floor area of room in which mezzanine is located. Exceptions for Type I and II structures
Equipment Platforms	505.5	Equipment platforms not to be included in building area, as part of floor below or means of egress, or in number of stories
Area Limitations	505.5.1	Equipment platforms may not exceed 2/3 of the area of the room, if occurring alone or in aggregate with mezzanines.
Fire Supression	505.5.2	Sprinklers required above and below equipment platforms
Guards	505.5.3	Equipment platforms shall have guards where required by Section 1013.1
Area Modifications	506	
General	506.1	Areas limited by Table 503 shall be permitted to be increased due to frontage and sprinkler protection.
Basements	506.1.1	Basement not included in allowable area if it does not exceed area allowed for one-story building.

NFPA 101 2006	
Section	Requirements
	No related Section
	No related Section
8.6.9.2	Does not have exceptions for specified structures
40.2.5.2	Industrial egress required to meet NFPA Table 40.2.5.2.1
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Frontage Increase	506.2	Area increase for frontage only permitted if building has more than 25% of frontage facing open space ≥ 20 feet. Provides formula for determining area increase.
Width Limits	506.2.1	Width must be ≥ 20 feet; width divided by 30 ≤ 1 except where permitted to be unlimited area, width divided by 30 ≤ 2 .
Open Space Limits	506.2.2	Open space must be on same lot or dedicated for public use. Access required from street or fire lane.
Automatic Sprinkler System Increase	506.3	Area limitation in Table 503 is permitted to be increased 200% for multi-story buildings and 300% for single-story buildings.
Area Determination	506.4	The maximum area of a multi-story building shall be determined by multiplying the allowable area of the first story as determined in Section 506.1, by two for buildings with two stories above grade plane. Multiply by three for buildings with three or more stories above grade plane.
Mixed Occupancies	506.4.1	For mixed occupancy buildings, the allowable area per story shall be based on the most restrictive provisions.
Unlimited Area Buildings	507	
General	507.1	The area of buildings of the occupancies and configurations specified in this section shall not be limited

NFPA 101 2006	
Section	Requirements
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Nonsprinklered, One Story	507.2	The area of a one-story, group F-2 and S-2 building shall not be limited if building is surrounded and adjoined by public ways or yards \geq 60 feet in width.
Sprinklered, One Story	507.3	The area of one-story, group B or S or group A-4, of other than Type V construction, shall not be limited if equipped with sprinkler system and adjoined to public ways \geq 60 feet in width
Two Story	507.4	The area of a two-story, group B or S building shall not be limited if equipped with automatic sprinkler system and surrounded and adjoined by public ways \geq 60feet in width
Reduced Open Space	507.5	Required open space of 60 feet shall be permitted to be reduced to not less than 40 feet provided specified requirements are met.
Group A - 3 Buildings	507.6	Group A-3 buildings used as place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type II construction shall not be limited when specified criteria are met.
Mixed Use and Occupancy	508	
Incidental Uses	508.2	Incidental use areas shall comply with the provisions of this section

Section	Requirements
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
	No related Section
6.1.14.1.3	specified incidental areas permitted to be considered part of the predominant occupancy and are subject to provisions of the code of the predominant occupancy.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Incidental Use Areas	Table 508.2	Gives incidental rooms or areas and their required separation and/or protection
Occupancy Classification	508.2.1*	An incidental use area shall be classified in accordance with the occupancy of that portion of the building or the building shall be classified as a mixed occupancy. More definitive
Separation	508.2.2*	Incidental use areas shall be separated and/or protected in accordance with Table 508.2
Construction	508.2.2.1	Incidental use areas shall be separated from remainder of the building by barrier constructed in accordance with Section 706. Construction must be capable of resisting passage of smoke.
Protection	508.2.3	Where an automatic fire-extinguishing system or an automatic sprinkler system is provided in accordance with Table 508.2, only the incidental use areas need be equipped with such a system
Mixed Sec.	508.3	
Occupancies	508.3.1	Aggregate accessory occupancies shall not occupy more than 10 percent of the area of the story in which they are located and shall not exceed the tabular values in Table 503
Occupancy Classification	508.3.1.1	Accessory occupancies shall be individually classified in accordance with Section 302.1. Most restrictive applicable

Section	Requirements
	No related Section
6.1.14.1.3	Specified areas permitted to be considered part of the predominant occupancy and are subject to provisions of the code of the predominant occupancy.
	Separation based on predominant occupancy, but not from the present occupancy
	No related Section
	No related Section
6.1.14.2.1	Multiple occupancy
	No related Section
	No related Section

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
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Section	Requirements
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provisions of Section 403 and Chapter 9 shall apply to the entire building or portion thereof

No related Section

Allowable Area and Height	508.3.1.2	Allowable area and height of a building shall be based on the main occupancy. Height of accessory occupancies shall not exceed values in Table 503, without height and area increases in accordance with Sections 504 and 506.
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No related Section

Separation	508.3.1.3	No separation is required between accessory occupancies or the main occupancy.
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No related Section

Nonseparated Occupancies

6.1.14.3 Mixed occupancies

Occupancy Classification	508.3.2.1	Non separated occupancies shall be classified in accordance with Section 302.1. Code requirements shall apply to each portion of the building based on the occupancy of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the entire building or portion thereof.
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6.1.14.3.2	The means of egress facilities type of construction, protection, and other safeguards in the building shall comply with most restrictive requirements of the occupancies involved.
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Allowable Area and Height	508.3.2.2	Allowable area and height of a building shall be based on the most restrictive allowances.
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No related Section

Separation	508.3.2.3	No separation required between occupancies
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6.1.14.3.2

Separated Occupancy	508.3.3	
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6.1.14.4 Separated occupancies

	508.3.3.1	The building area shall be such that the sum of ratios of the actual floor area of each occupancy divided by the allowable
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No related Section

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
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Section	Requirements
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area of each occupancy shall not exceed one.

Allowable Area	508.3.3.2	The building area shall be such that the sum of ratios of the actual floor area of each occupancy divided by the allowable area of each occupancy shall not exceed one.
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No related Section

Allowable Height	508.3.3.3	Each occupancy shall comply with the height limitations based on the type of construction of the building in accordance with Section 503.1
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No related Section

Separation	508.3.3 Table	(see attached)
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Table 6.1.14.4. 3-4	Tables 6.1.14.1(a) and (b) (see attached)
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Special Provisions 509

No related Section

General	509.1	Permits modifications to and exemptions from other requirements of this chapter
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No related Section

Group S-2 Enclosed or Open Parking Garage With Group A,B or S Above	509.2	Basement first story above grade for Type IA to be considered separate building if meets multiple specific requirements
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No related Section

Group S-2 Enclosed Parking Garage With Group S-2 Open Parking Garage Above	509.3	Group S-2 enclosed garages on basement or first story to be considered separate building from S-2 open garage above if meets multiple specific requirements
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No related Section

Open Parking Garage Beneath Groups A, B and I	509.7	Open parking under groups A,I,B,M, and R may not exceed heights and areas allowed in 406.3. Building above must meet 503. Total height to be measured from grade plane.
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No related Section

INTERNATIONAL BUILDING CODE 2006**NFPA 101 2006**

Title	Section	Requirements
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Section	Requirements
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Fire Separation	509.7.1	Fire separation between open parking and occupancies above must meet Table 508.3.3. Structural members supporting occupancies above require more restrictive requirements. Exit facilities for occupancies above to be separated by 2-hour construction.
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Group B with Group S-2 Open Parking Garage Above	509.8	Group B or M uses located in basement of first story below a Group S-2 open parking garage shall be classified as a separate building for purpose of determining type of construction when all specified conditions are met.
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No related Section

**IBC TABLE 508.3.3
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)**

OCCUPANCY	A _e , E		I		R _d		F-2, S-2 _{c,d} , U _d		B _b , F-1, M _b , S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A _e , E _e	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3 _a
I	—	—	N	N	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
R _d	—	—	—	—	N	N	1	2	1	2	NP	NP	3	NP	2	NP
F-2, S-2 _{c,d} , U _d	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3 _a
B _b , F-1, M _b , S-1	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2 _a
H-1	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP
H-3, H-4, H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

For SI: 1 square foot = 0.0929 m².

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section [903.3.1.1](#).

NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section [903.3.1.1](#).

N = No separation requirement.

NP = Not permitted.

a. For Group H-5 occupancies, see Section [903.2.4.2](#).

b. Occupancy separation need not be provided for storage areas within Groups B and M if the:

1. Area is less than 10 percent of the floor area;
2. Area is equipped with an automatic fire-extinguishing system and is less than 3,000 square feet; or
3. Area is less than 1,000 square feet.

c. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.

d. See Section [406.1.4](#).

e. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

NFPA 101 Table 6.1.14.4.1(a) Required Separation of Occupancies (hours)*, Part 1

Occupancy	Assembly ≤300	Assembly >300 to ≤1000	Assembly >1000	Educational	Day-Care >12 Clients	Day-Care Homes	Health Care	Ambulatory Health Care	Detention & Correctional	One- & Two-Family Dwellings	Lodging or Rooming Houses	Hotels & Dormitories
Assembly ≤300		0	0	2	2	1	2 [†]	2	2 [†]	2	2	2
Assembly >300 to ≤1000			0	2	2	2	2 [†]	2	2 [†]	2	2	2
Assembly >1000				2	2	2	2 [†]	2	2 [†]	2	2	2
Educational					2	2	2 [†]	2	2 [†]	2	2	2
Day-Care >12 Clients						1	2 [†]	2	2 [†]	2	2	2
Day-Care Homes							2 [†]	2	2 [†]	2	2	2
Health Care								2 [†]	2 [†]	2 [†]	2 [†]	2 [†]
Ambulatory Health Care									2 [†]	2	2	2
Detention & Correctional										2 [†]	2 [†]	2 [†]
One- & Two-Family Dwellings											1	1
Lodging or Rooming Houses												1
Hotels and Dormitories												

* The fire resistance rating is permitted to be reduced by 1 hour, but in no case to less than 1 hour, where the building is protected throughout by an approved automatic sprinkler system in accordance with 9.7.1.1(1) and supervised in accordance with 9.7.2.

† The 1-hour reduction due to the presence of sprinklers in accordance with the asterisk footnote is not permitted.

NFPA 101 Table 6.1.14.4.1(b) Required Separation of Occupancies (hours)*, Part 2

Occupancy	Apartment Buildings	Board & Care, Small	Board & Care, Large	Mercantile	Mercantile, Mall	Mercantile, Bulk Retail	Business	Industrial, General Purpose	Industrial, Special Purpose	Industrial, High Hazard	Storage, Low & Ordinary Hazard	Storage, High Hazard
Assembly ≤300	2	2	2	2	2	3	1	2	2	3	2	3
Assembly >300 to ≤1000	2	2	2	2	2	3	2	2	2	3	2	3
Assembly >1000	2	2	2	2	2	3	2	3	2	3	3	3
Educational	2	2	2	2	2	3	2	3	3	3	3	3

Dare-Care >12 Clients	2	2	2	2	2	3	2	3	3	3	3	3
Day-Care Homes	2	2	2	2	2	3	2	3	3	3	2	3
Health Care	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]
Ambulatory Health Care	2	2	2	2	2	2 [†]	1	2	2	2 [†]	2	2 [†]
Detention & Correctional	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	NP	2 [†]	NP
One- & Two- Family Dwellings	1	1	2	2	2	3	2	2	2	3	2	3
Lodging or Rooming Houses	1	2	2	2	2	3	2	2	2	3	2	3
Hotels & Dormitories	1	2	2	2	2	3	2	2	2	3	2	3
Apartment Buildings		2	2	2	2	3	2	2	2	3	2	3
Board & Care, Small			1	2	2	3	2	3	3	3	3	3
Board & Care, Large				2	2	3	2	3	3	3	3	3
Mercantile					0	3	2	2	2	3	2	3
Mercantile, Mall						3	2	3	3	3	2	3
Mercantile, Bulk Retail							2	2	2	3	2	2
Business								2	2	2	2	2
Industrial, General Purpose									1	1	1	1
Industrial, Special Purpose										1	1	1
Industrial, High Hazard											1	1
Storage, Low & Ordinary Hazard												1
Storage, High Hazard												

NP: Not permitted.

* The fire resistance rating is permitted to be reduced by 1 hour, but in no case to less than 1 hour, where the building is protected throughout by an approved automatic sprinkler system in accordance with 9.7.1.1(1) and supervised in accordance with 9.7.2.

† The 1-hour reduction due to the presence of sprinklers in accordance with the asterisk footnote is not permitted.

Types of Construction

Chapter 6 of the IBC defines the requirements of each construction classifications based on the hourly ratings of various structural elements. The NFPA 101 refers to NFPA 220 for definitions.

The following table compares the various construction classification requirements as identified in each of the codes. A direct comparison of the various fire resistance rating requirements as defined by construction classification between the codes is not obtainable because each of the codes identifies requirements with an associated terminology that is not consistent between the codes. However, once a construction classification is identified, it can be readily compared to those of the other code. As an example, the IBC identifies Type 1A construction as having 3-hour exterior bearing walls, 3-hour interior bearing walls, 2-hour floors, and 1.5-hour roof construction. A similar classification is identified by NFPA 220, as referenced by NFPA 101, as construction I (332) having 3-hour exterior building walls, 3-hour interior bearing walls, 2-hour floors, 1.5-hour roofs.

These definitions only have importance in the context of the application and identification by their respective codes. A straight forward comparison of each of these requirements is only applicable in the context of their implementation to a holistic, full range of code requirements.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
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Section	Requirements
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Types of Construction **Chapter 6** **Requirements on building construction types.**

8.2.1 **Construction**

Fire Resistance Ratings for Building Elements **Table 601**

8.2.1.2

Type 1 For construction IA: Exterior Bearing walls: 3-hr FRR, Interior Bearing: 3-hr FRR, Floor: 2-hr FRR, Roof: 1.5-hr FRR

For Construction I(442): Exterior Bearing walls: 4-hr FRR, Interior Bearing: 4-hr FRR (3-hr FRR if supporting only roof or one floor), Floor: 2-hr FRR, Roof: 2-hr FRR

For construction IB: Exterior Bearing walls: 2-hr FRR, Interior Bearing: 2-hr FRR, Floor: 2-hr FRR, Roof: 1-hr FRR

For Construction I(332): Exterior Bearing walls: 3-hr FRR, Interior Bearing: 3-hr FRR (2-hr FRR if supporting only roof or one floor), Floor: 2-hr FRR, Roof: 1.5-hr FRR

Type II For construction IIA: Exterior Bearing walls: 1-hr FRR, Interior Bearing: 1-hr FRR, Floor: 1-hr FRR, Roof: 1-hr FRR

For Construction II(222): Exterior Bearing walls: 2-hr FRR (1-hr FRR if supporting only roof), Interior Bearing: 2-hr FRR (1-hr FRR if supporting only roof), Floor: 2-hr FRR, Roof: 1-hr FRR

For construction IIB: Exterior Bearing walls: 0-hr FRR, Interior Bearing: 0-hr FRR, Floor: 0-hr FRR, Roof: 0-hr FRR

For Construction II(111): Exterior Bearing walls: 1-hr FRR, Interior Bearing: 1-hr FRR, Floor: 1-hr FRR, Roof: 1-hr FRR

Type III

For Construction II(000): Exterior Bearing walls: 0-hr FRR, Interior Bearing: 0-hr FRR, Floor: 0-hr FRR, Roof: 0-hr FRR

For construction IIIA: Exterior Bearing walls: 2-hr FRR, Interior Bearing: 1-hr FRR, Floor: 1-hr FRR, Roof: 0-hr FRR

For Construction III(211): Exterior Bearing walls: 2-hr FRR, Interior Bearing: 1-hr FRR, Floor: 1-hr FRR, Roof: 1-hr FRR

For construction IIIB: Exterior Bearing walls: 2-hr FRR, Interior Bearing: 0-hr FRR, Floor: 0-hr FRR, Roof: 0-hr FRR

For Construction III(200): Exterior Bearing walls: 2-hr FRR, Interior Bearing: 0-hr FRR, Floor: 0-hr FRR, Roof: 0-hr FRR

INTERNATIONAL BUILDING CODE 2006**NFPA 101 2006**

Title	Section	Requirements
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Section	Requirements
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Type IV		For construction IV: Exterior Bearing walls: 2-hr FRR, Interior Bearing: 1-hr FRR/HT, Floor: HT, Roof: HT
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	For Construction IV(2HH): Exterior Bearing walls: 2-hr FRR, Interior Bearing: 2-hr FRR (1-hr FRR if supporting only roof or one floor), Floor: HT, Roof: HT
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Type V		For construction VA: Exterior Bearing walls: 1-hr FRR, Interior Bearing: 1-hr FRR, Floor: 1-hr FRR, Roof: 1-hr FRR For construction VB: Exterior Bearing walls: 0-hr FRR, Interior Bearing: 0-hr FRR, Floor: 0-hr FRR, Roof: 0-hr FRR
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	For Construction V(111): Exterior Bearing walls: 1-hr FRR, Interior Bearing: 1-hr FRR, Floor: 1-hr FRR, Roof: 1-hr FRR For Construction V(000): Exterior Bearing walls: 0-hr FRR, Interior Bearing: 0-hr FRR, Floor: 0-hr FRR, Roof: 0-hr FRR
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Commentary Table 8.1 Cross-Reference of Building Construction Types

NFPA 220 / NFPA5000	I(442)	I(332)	II(222)	II(111)	II(000)	III(211)	III(200)	IV(2HH)	V(111)	V(000)
IBC	-	IA	IB	IIA	IIB	IIIA	IIIB	IVHT	VA	VB

Fire Related Construction

Chapter 7 of the IBC primarily focuses on the fire resistance rating of fire separation assemblies and their application within buildings. These assemblies include fire walls, fire barriers such as horizontal exits, shaft enclosures, and occupancy separations. This chapter of the IBC also focuses on fire protection requirements related to penetration fire stop systems, penetration of membranes, and other passive fire protection features. The NFPA 101 has similar requirements related to most of the provisions of the IBC. The differences are identified in the following tables but there are very few major differentiations between the two codes. One item of note that is addressed differently between the two codes is the application of smoke dampers at the penetration of shaft enclosures as required by the IBC. The NFPA 101 has no similar provision in it or its referenced codes and the provision of smoke dampers at shafts is a significant differentiation between the two codes. Of note with regards to smoke dampers is that several jurisdictions including the Commonwealth of Virginia have modified the IBC through their amendments and have removed the requirement for smoke dampers at shaft penetrations.

Of similar note, the Commonwealth of Virginia has also modified chapter 7 of the IBC with regards to elevator lobbies and has removed that requirement regardless of occupancy. A straight forward application of the IBC, without amendments, will require elevator lobbies in occupancies that have a fire rated corridor such as residential (apartments, healthcare) occupancies. The NFPA 101 has no similar requirements to elevator lobbies.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
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Section	Requirements
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Exterior Walls 704

Allowable area of openings	704.8	Max. area of protected or unprotected openings permitted in an exterior wall shall not exceed values in Table 704.8.
	704.8.1	In buildings with auto. Sprinklers the max area of unprotected openings, except Groups H-1, H-2, H-3, shall be the same as tabulated limits for protected openings.
	704.8.2	Unlimited unprotected openings permitted in exterior walls of first story above grade facing a street with fire separation over 15 ft

8.2.2.4, 8.3.4.1	Walls used as fire barrier shall comply with NFPA 221 Chapter 7. The limitation on percentage width of openings shall not apply.; Every opening in a fire barrier shall be protected to limit the spread of fire and resist smoke movement
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Fire Walls 705

Horizontal Continuity	705.5	Fire walls must extend from exterior wall to exterior wall and shall extend at least 18 in. beyond exterior surface of walls Exceptions: (1) Permitted to terminate at end of combustible siding provided 1 hour FR for a distance of 4 ft on both sides of wall (2) Permitted to terminate at interior of noncombustible surface where protected by sprinklers.
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8.2.2.3	Fire barriers are continuous from outside wall to outside wall or from one fire barrier to another, or from floor to floor of interstitial space
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Fire Barriers 706

Atriums	706.3.5 directing to 404.5	Atrium separated by 1 hour barrier Exceptions: (1) Glass wall assembly with 3/4 hour rating (2) Adjacent spaces on any of the three floors of the atrium not required to be separated from atrium if included in smoke control system design
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8.6.7	Atrium is permitted provided that (2) Access to exits and exit discharge in accordance with 7.7.2 is permitted to be within atrium (3) Entire building is protected by supervised sprinklers.
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Shaft Enclosures **707** **Exceptions: (2.1) Area of the floor opening between stories does not exceed twice the horizontal projected area of escalator and in protected by draft curtain and sprinklers (6) Not required for approved masonry chimneys (9) Not required for floor openings between mezzanine and floor below**

8.6.4-8.6.5, 8.6.3 (3) directing to 8.6.8.6, 8.6.7 **Shafts that do not extend to bottom or top of building shall be permitted to be protected by fire dampers at highest or lowest level.**

Refuse and laundry chutes 707.13.3 Access openings enclosed by fire barrier of 1 hour or less. Openings shall be protected by opening protectives having a rating not less than 3/4 hour

Table 8.3.4.2, 8.6.5 Vertical shaft has minimum fire protection ratings of 2 hours if connecting four or more stories, and 1 hour if less than four stories.

Elevator lobby 707.14.1 **Exceptions: (1) Enclosed lobby not required at street floor if entire street floor is sprinklered, (2) A lobby is not required if the elevator is not required to be located in the shaft, (3) In other than high-rises, enclosed elevator lobbies not required where protected by auto. Sprinklers, (4) Jails, not applicable, (5) Allows smoke partitions in lieu of fire partitions where the building is completely sprinklered, and (6) Enclosed lobby not required where hoistway is pressurized**

Table 8.3.4.2 Elevator hoistway enclosure has fire resistance rating of 2 hours if connecting four or more stories, and 1 hour of connecting less than four stories

Smoke Barriers **709** **N/A**

8.5.3 **Fire barrier shall be permitted to be used as a smoke barrier, provided it meets 8.5**

Openings 709.5 directing to 715 Exception: In Group I-2, a pair of opposite swinging doors without cenet mullion shall have vision panels with rated glazing;

8.5.4.2 directing to 8.2.2.5, 8.5.4.3, 8.5.4.5 directing to 8.3.3

Smoke Partition **710**

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Title	Section	Requirements
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Continuity 710.4 Shall extend from top of foundation or floor below to underside of the floor or roof sheathing, deck, or slab above or to the underside of the ceiling where ceiling membrane limits smoke transfer

8.4.2 (3) If enclosing hazardous areas, permitted to terminate at underside of suspended ceiling system where ceiling system is membrane that limits smoke transfer and grilles from hazardous area into plenum space is not permitted

Penetrations 712

Through-penetration firestop system 712.3.1.2 Shall have an F rating of not less than the required fire-resistance rating of the wall penetrated

8.3.5.1.3 Shall have F rating of at least 1 hour, but not less than the fire-resistive rating of the fire barrier penetrated.

Membrane penetrations 712.3.2 (2) Electrical boxes on opposite side of the wall or partition shall be separated: by a horizontal distance of at least 24 in, by solid fireblocking, or by protecting both boxes with listed putty pads

8.3.5.6.3 (2) Membrane penetrations for any listed electrical outlet box shall be permitted, provided that such boxes have been tested for fire-resistive rating assemblies

Through-penetration firestop system 712.4.1.1.2 Exception: T-rating not required for floor penetrations contained and located within the cavity of a wall

8.3.5.1.4 (2) Rating not required for penetrations through floors/floor assemblies where penetration is not in direct contact with combustible material

Fire-resistant joint systems 713

General 713.1 Exceptions: Not required for joints in: floors within a single dwelling unit, floors where joint is protected by enclosure, floors within atriums, malls and parking structures, mezzanine floors, walls with permitted unprotected openings, roofs where openings are permitted and control joints

8.3.6 No given exceptions

Opening Protectives 715

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Title	Section	Requirements
Fire-resistance rated glazing	715.2	Labeled glazing as part of a fire-resistance rated wall assembly in accordance with ASTM E 119 shall not be required to comply with section 715
Ducts and Air Transfer Openings	716	
Smoke Damper actuation methods	716.3.2.1	Damper shall close upon activation of smoke detector in accordance with 907.10 and one of the following methods: (1) Where damper is within duct, detector shall be within 5 feet of the damper (2) Where damper is above doors in a smoke barrier, spot detector shall be on either side of door opening (3) When damper is within unducted opening, install spot detector within 5 feet horizontally of damper (4) Where damper is in corridor wall/ceiling, smoke detection system allowed to control damper
Shaft Enclosures	716.5.3	Exception 1: Fire dampers not required at shaft penetrations when steel exhaust subducts are vertically extended at least 22 in., or penetration has been tested under ASTM E 119 as an assembly, or ducts are part of smoke control system design, or penetrations are in a parking garage separated by 2 hr construction Exception 2: In Group B and R occupancies with auto. sprinklers, smoke dampers not required at penetration where kitchen, clothes dryer, bathroom and toilet exhaust openings are installed with exhaust subducts that extend at least 22 in.; and an

Section	Requirements
8.3.3.2.1 , 8.3.3.5	Fire-resistance rated glazing shall comply with NFPA 257 Rated glazing permitted in fire barriers having FR of 1 hour or less
8.5.5.7.3	Required smoke dampers in air-transfer openings shall close upon detection of smoke by approved smoke detectors
8.6.4.3	Shafts that do not extend to bottom or top of building shall be permitted to be protected by fire dampers at highest or lowest level.

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Title	Section	Requirements
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Section	Requirements
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		exhaust fan is installed at upper terminal of the shaft		
Fire Partitions	716.5.4	Exceptions : In other than Group H, fire dampers not required where: (1) Partitions are tenant separation or corridor walls in a building with auto. sprinklers (2) Tenant partitions in covered malls where walls not required to extend to underside of roof		No given exceptions
Smoke Barriers	716.5.5	A smoke damper designed to resist the passage of smoke shall be provided at each point a duct or air-transfer opening penetrates a smoke barrier	8.5.5.3	Smoke dampers shall not be required: (2) where ducts/ air transfer opening are part of smoke control system (3) air movement prevents recirculation (5) ducts penetrate floors that serve as smoke barriers
Membrane penetrations	716.6.2	Ducts/air transfer openings that penetrate the ceiling membrane of a rated floor/ceiling or roof/ceiling assembly shall be protected by one of the following: 1. A shaft enclosure 2. A listed ceiling radiation damper at ceiling line where duct penetrates the ceiling or where a diffuser penetrates the ceiling	N/A	No applicable code
Concealed Spaces	717			
Fireblocking	717.2	In combustible construction, install fireblocking to cut off concealed draft openings and form effective barrier between floors, between a top story and roof/attic space	8.6.10.1. (1)	Every exterior and interior wall and partition shall be firestopped at each floor level, at the top story ceiling level and at the level of support for roofs
	717.2.2	Provided in concealed spaces of stud wall and partitions, including furred spaces and parallel rows vertically at ceiling and floor		

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Title	Section	Requirements
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levels and horizontally at intervals less than 10 ft.

Combustible materials in concealed spaces	717.5	Combustible materials shall not be permitted in concealed spaces of buildings or Type I or II construction
Fire-Resistance requirements for plaster	718	The fire resistance requirements for plaster shall comply with Section 718
Thermal- and Sound-Insulating Materials	719	Insulating materials and all layers of insulation shall comply with Section 719 except fiberboard insulation, foam plastic insulation and duct and pipe insulation
Prescriptive Fire Resistance	720	The provisions of section 720 contains prescriptive details of fire-resistance-rated building elements
Calculated Fire Resistance	721	The provisions of section 721 contains procedures by which the fire resistance of specific materials or combination of materials is established by calculations

	No related section
	No related section
	No related section
	No related section
	No related section

Interior Finishes

Chapter 8 of the IBC focuses on interior finish requirements. This section of the code identifies flame spread and smoke development characteristics and provides a definition of interior finish based on these parameters. The interior finish incorporates wall coverings, floor coverings, and decorative materials.

The NFPA 101 also addresses interior finish, but generally provides less detail than the IBC.

The following tables summarize and compare the requirements of the two codes. The two codes have similar requirements pertaining to the type of interior finish and flame spread parameters allowed in each occupancy, but NFPA 101 is more restrictive.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
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Section	Requirements
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General	801	
Scope	801.1	Explains decorative materials and those used for materials and trim. Materials that are less than .036 inches thick and applied directly to walls or ceilings shall not be subject to interior finish requirements
Decorative Materials and Trim	801.1.2	Decorative materials must comply with section 806 for flame resistance and combustibility.
Applicability	801.1.3	Flood damage resistant materials required when below flood elevation as described in 1612.3.
Applications	801.2	Combustible materials are permitted to be used as combustible materials. Show windows in the exterior walls of the first story above grade may be made of wood. Foam plastics shall not be used as interior finish or trim except as provided in section 2603.9 or 2604.

10.1, 10.2.1, 10.2.1.1	Applies to interior finishes, contents, and furnishings in new and existing buildings. Finishes tested to simulate actual fire conditions. Class A materials that are less than 1/28 in. thick and applied directly to walls or ceilings shall not be subject to interior finish requirements. Fixed or movable walls, partitions, wall pads, etc., shall be considered interior finish and shall not be considered decorations or furnishings.
10.3	Covers requirements for furnishings that do not meet the def. of interior finish.
	No related section
10.2.4.3	Foam plastics are not permitted as interior wall or ceiling finishes unless large scale tests are conducted as stated in 10.2.4.3.1 in order to substantiate their combustibility characteristics. Cellular or foamed plastic shall be permitted for trim not in excess of 10 percent of the wall or ceiling area, and complying with the dimensions as listed in section 10.2.4.3.2.

Wall and Ceiling Finishes	803	
Stability	803.3	Interior finish may not come readily detached at 200°F for 30 minutes.

	No related section
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INTERNATIONAL BUILDING CODE 2006**NFPA 101 2006**

Title	Section	Requirements
Application	803.4	Defines requirements for materials that are applied to walls, ceilings, or structural elements that are required to be of noncombustible or fire resistive construction.
Direct Attachment and Furred Construction	803.4.1	If not directly applied, interior finish materials must be on furring strips no greater than 1.75 inches thick; when on furring strips, need to fill void b/w strips with inorganic or class A fill or fire blocking every eight feet per section 717.
Set-out Construction	803.4.2	Defined as applied at a distance greater than permitted in section 803.4.1; must be Class A material or be sprinklered on both sides of the material or attached to noncombustible backing; hangers and assembly members or dropped ceilings must be noncombustible except in Type III or V construction where fire-retardant treated wood may be used.
Heavy Timber Construction	803.4.3	All finishes that are applied directly against wood decking or planking of Type IV construction, or applied to wood furring strips applied to wood decking must be fireblocked according to section 803.4.1.

Section	Requirements
	No related section
	No related section
	No related section
	No related section

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
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Section	Requirements
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Materials	803.4.4	All finishes that are not more than .25 inches thick must be applied directly to a noncombustible backing. Exceptions for Class A materials and materials where qualifying tests were conducted with the material spurred or suspended from the noncombustible backing.
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	No related section
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Interior Finish Requirements Based on Groups	803.5	See Table 803.5 for Interior Wall and Ceiling Finish Requirements By Occupancy (<i>attached</i>)
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10.2.2.1	See NFPA Table A10.2.2 (<i>attached</i>).
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Textiles	803.6	Any textile used as interior wall or ceiling finish must comply with one of the following requirements listed in 803.6.1, 803.6.2 or 803.6.3
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10.2.4.1	The use of textiled materials on walls or ceilings shall comply with one of the following conditions:
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		Not Addressed
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	(1) Textiles with Class A rating shall be permitted on partitions that don't exceed three-quarters of the floor-to-ceiling height or don't exceed 8 ft., whichever is less.
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		Not Addressed
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	(2) Textiles with Class A rating shall be permitted to extend not more than 48 in. above the finished floor.
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		Not Addressed
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	(3) Previously approved existing installations of textile material having a class A rating shall be permitted to be continued to be used.
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Room Corner Test, Textiles	803.6.2	Textile coverings shall meet the criteria of Section 803.6.2.1 when tested in manner intended for use in accordance with method B protocol of NFPA 265 using the product mounting system, including adhesive.
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10.2.4.1.5	Textiles are permitted on walls and partitions where tested in accordance with NFPA 265.
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NFPA 101 2006

Title	Section	Requirements
Room Corner Test, Ceiling and Wall Finish	803.6.3	Textile coverings shall meet the criteria of Section 803.2.1 when tested in the manner intended for use in accordance with NFPA 286, using the product mounting system, including adhesive
Expanded Vinyl Wall Coverings	803.7	Comply with section 803.6
Insulation	803.8	Thermal and acoustical insulation shall comply with Section 719.
Acoustical Ceiling Tiles	803.9	Metal suspension systems for acoustical tile and lay-in panel ceilings must comply with this section.
Materials and Insulation	803.9.1	Must be installed according to manufacturer's recommendations and applicable provisions for applying interior finish.
Suspended Acoustical Ceilings	803.9.1.1	Install per ASTM C 635 and ASTM C 636.
Fire -resistance-rated Construction	803.9.1.2	If Ceiling is part of fire rated construction, then must comply with Chapter 7.
Interior Floor Finish	804	
General	804.1	Code applies to all floor finishes except traditional floors (wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not compromised of fibers.
Testing and Identification	804.3	Tested by approved agency per NFPA 253, have style/maker/supplier identified with hang tag; to be classified per Section 804.2. Carpets and similar coverings

Section	Requirements
10.2.4.1.6	Materials are permitted on walls, partitions and ceilings where tested in accordance with NFPA 286.
10.2.4.2	Comply with section 10.2.2.1
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
10.2.2.2	Applies only when required by specific occupancy chapter or when the floor finish is of unusual hazard.
	No related section

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Section Requirements

and underlayment must also be tested.

Minimum Critical Radiant Flux 804.4.1 Interior floor finish in exit enclosures, exit passageways, and corridors shall not be less than Class I in Groups I-2 and I-3 and not less than Class II in Groups A, B, E, H, I-4, M, R-1, R-2, and S. In all areas, floor covering must comply with DOC FF-1 "pill test." Exception applies if building is fully sprinklered.

10.2.2.2 Business occupancy allows Class I and II

Combustible Materials In Type I and II Construction

Application 805.1 Combustible materials installed on floors of Type I or II construction must comply with the following Section 805.1.1 through 805.1.3 Exception: Stages and Platforms constructed in accordance with Sections 410.3 and 805.1.3.

No related section

Subfloor Construction 805.1.1 Floor sleepers, bucks, and nailing blocks shall not be constructed of combustible materials, unless the space b/w the fire-resistance-rated floor construction and the flooring is either solidly filled with approved noncombustible materials or fireblocked in accordance with Section 7.7, and provided that such open

No related section

INTERNATIONAL BUILDING CODE 2006**NFPA 101 2006**

Title	Section	Requirements
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Section	Requirements
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spaces shall not extend under or through permanent partitions or walls.

Wood Finish Flooring	805.1.2	Wood finish flooring is permitted to be attached directly to the embedded or fireblocked wood sleepers and shall be permitted where cemented directly to the top surface of approved fire-resistance-rated floor construction or directly to a wood subfloor attached to sleepers as provided for in Section 805.1.1.
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No related section

Insulating Boards	805.1.3	Combustible insulating boards not more than 1/2 inch thick and covered with approved finish flooring are permitted where attached directly to a noncombustible floor assembly or to wood subflooring attached to sleepers as provided for in Section 805.1.1.
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No related section

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
General	805.1	Curtains, drapes, and other decorative materials are to be noncombustible or flame retardant per NFPA 701 Section 806.2 in occupancy Groups A and I. In I-1 and I-2, flame retardant combustible decorations, unless limited quantity. No combustible decorations in I-3. Fixed or moveable walls or partitions shall be considered interior finish if they cover 10 percent or more of the wall or ceiling area, and shall not be considered decorative materials or furnishings. In Group B and M occupancies, fabric suspended from the ceiling and not supported by the floor shall meet the flame propagation performance criteria in accordance with Section 806.2 and NFPA 701 or shall be noncombustible.

Section	Requirements
10.2.5.1	Up to 10 percent of interior wall and ceiling finish may be considered trim and may be Class C, where interior wall and ceiling finish of Class A or Class B is required.

Noncombustible Materials and Trim 806		
Noncombustible Materials	806.1.1	Use of noncombustible materials is not limited.
Combustible Decorative Materials	806.1.2	The permissible amount of decorative materials meeting the flame propagation criteria of NFPA 701 shall not exceed 10 percent of the aggregate area walls and ceilings. Exceptions for Group A, B and M.

No related section	
10.2.5.1	Up to 10 percent of interior wall and ceiling finish may be considered trim and may be Class C, where interior wall and ceiling finish of Class A or Class B is required.

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Title	Section	Requirements
Acceptance Criteria and Reports	806.1.2	Where required by Section 806.1, decorative materials shall be tested by an approved agency and meet the flame propagation performance criteria of NFPA 701 or such materials shall be noncombustible. Report of test must be available for inspection.
Foam Plastics	806.3	Foam plastic used as trim in any occupancy shall comply with Section 2604.2
Proxylin Plastic	806.4	Imitation Leather or other material consisting of or coated with a proxylin or similarly hazardous base shall not be used in Class A occupancies

Section	Requirements
	No related section
	No related section
	No related section

IBC TABLE 803.5 - INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY						
GROUP	SPRINKLERED I			NONSPRINKLERED		
	Exit enclosures and exit passageways a,b	Corridors	Rooms and enclosed spaces c	Exit enclosures and exit passageways a,b	Corridors	Rooms and enclosed spaces c
A-1 & A-2	B	B	C	A	A d	B e
A-3 f , A-4, A-5	B	B	C	A	A d	C
B, E, M, R-1, R-4	B	C	C	A	B	C
F	C	C	C	B	C	C
H	B	B	C g	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B h, i	A	A	B
I-3	A	A j	C	A	A	B
I-4	B	B	B h, i	A	A	B
R-2	C	C	C	B	B	C
R-3	C	C	C	C	C	C
S	C	C	C	B	B	C
U	No restrictions			No restrictions		

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m².

- a. Class C interior finish materials shall be permitted for wainscoting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section [803.4.1](#).
- b. In exit enclosures of buildings less than three stories in height of other than Group I-3, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted.
- c. Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.
- d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.
- e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.
- f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.
- g. Class B material is required where the building exceeds two stories.
- h. Class C interior finish materials shall be permitted in administrative spaces.
- i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.
- j. Class B materials shall be permitted as wainscoting extending not more than 48 inches above the finished floor in corridors.
- k. Finish materials as provided for in other sections of this code.
- l. Applies when the exit enclosures, exit passageways, corridors or rooms and enclosed spaces are protected by a sprinkler system installed in accordance with Section [903.3.1.1](#) or [903.3.1.2](#).

NFPA 101 Table A.10.2.2 Interior Finish Classification Limitations

Occupancy	Exits	Exit Access Corridors	Other Spaces
Assembly — New			
>300 occupant load	A I or II	A or B I or II	A or B
≤300 occupant load	A I or II	A or B I or II	A, B, or C
Assembly — Existing			
>300 occupant load	A	A or B	A or B
≤300 occupant load	A	A or B	A, B, or C
Educational — New	A I or II	A or B I or II	A or B; C on low partitions*
Educational — Existing	A	A or B	A, B, or C
Day-Care Centers — New	A I or II	A I or II	A or B
Day-Care Centers — Existing	A or B	A or B	A or B
Day-Care Homes — New	A or B I or II	A or B	A, B, or C
Day-Care Homes — Existing	A or B	A, B, or C	A, B, or C
Health Care — New	A	A	A
	NA	B on lower portion of corridor wall*	B in small individual rooms*
	I or II	I or II	
Health Care — Existing	A or B	A or B	A or B
Detention and Correctional — New (sprinklers mandatory)	A or B I or II	A or B I or II	A, B, or C
Detention and Correctional — Existing	A or B I or II	A or B I or II	A, B, or C
One- and Two-Family Dwellings and Lodging or Rooming Houses	A, B, or C	A, B, or C	A, B, or C

Hotels and Dormitories — New	A I or II	A or B I or II	A, B, or C
Hotels and Dormitories — Existing	A or B I or II*	A or B I or II*	A, B, or C
Apartment Buildings — New	A I or II	A or B I or II	A, B, or C
Apartment Buildings — Existing	A or B I or II*	A or B I or II*	A, B, or C
Residential Board and Care — <i>(See Chapters 32 and 33.)</i>			
Mercantile — New	A or B I or II	A or B	A or B
Mercantile — Existing			
Class A or Class B stores	A or B	A or B	Ceilings — A or B; walls — A, B, or C
Class C stores	A, B, or C	A, B, or C	A, B, or C
Business and Ambulatory Health Care — New	A or B I or II	A or B	A, B, or C
Business and Ambulatory Health Care — Existing	A or B	A or B	A, B, or C
Industrial	A or B I or II	A, B, or C I or II	A, B, or C
Storage	A or B I or II	A, B, or C	A, B, or C

Notes:

- (1) Class A interior wall and ceiling finish — flame spread 0–25, (new applications) smoke developed 0–450.
- (2) Class B interior wall and ceiling finish — flame spread 26–75, (new applications) smoke developed 0–450.
- (3) Class C interior wall and ceiling finish — flame spread 76–200, (new applications) smoke developed 0–450.
- (4) Class I interior floor finish — critical radiant flux, not less than 0.45 W/cm².
- (5) Class II interior floor finish — critical radiant flux, not more than 0.22 W/cm² but less than 0.45 W/cm².
- (6) Automatic sprinklers — where a complete standard system of automatic sprinklers is installed, interior wall and ceiling finish with a flame spread rating not exceeding Class C is permitted to be used in any location where Class B is required and with a rating of Class B in any location where Class A is required; similarly, Class II interior floor finish is permitted to be used in any location where Class I is required, and no critical radiant flux rating is required where Class II is required. These provisions do not apply to new detention and correctional occupancies.
- (7) Exposed portions of structural members complying with the requirements for heavy timber construction are permitted.

*See corresponding chapters for details.

Fire Protection Systems

Chapter 9 of the IBC focuses on fire protection systems. These systems include automatic sprinkler systems, standpipe systems, fire extinguishers, and fire alarm and detection systems. The NFPA 101 provides little in the way of specific guidance or requirements with regard to these systems, and when required generally refers to other NFPA Codes and Standards. This concept is particularly true for automatic sprinkler system, standpipe systems, and fire detection and alarm systems. The NFPA 101 provides no direct guidance or citation related to smoke venting or smoke control, while these systems and features are more explicitly identified and detailed in the IBC.

Although several comparisons between the two codes are identified in the following tables, for the most part, the IBC provides a greater level of detail than explicitly identified within the NFPA 101.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
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Section	Requirements
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General 901

Scope	901.1	Specifies when fire protection systems are required and the specifications for those systems
Fire protection systems	901.2	Shall be installed and maintained per IBC and IFC. Any system not required is permitted but must meet requirements of the code
Modifications	901.3	Building official must approve removal or modifications to any system
Threads	901.4	Shall be compatible with connections used by the local fire department
Acceptance tests	901.5	Systems shall be tested and approved per the IFC and standards in the IBC and witnessed by building official
Fire areas	901.7	Shall be separated by fire barriers having a fire resistance rating based on Table 706.3.9

	No related section
	No related section
	No related section
	No related section
9.7.5	Sprinkler and standpipe systems shall be tested and maintained in accordance with NFPA 25
	No related section

Automatic sprinkler system 903

General	903.1	Sprinkler systems shall comply with this section. Alternative fire extinguishing systems complying with 904 shall be permitted
Where required	903.2	Sprinkler system shall be provided except in spaces in telecommunication buildings used for equipment, batteries and engines and equipped with detection system and 1 hr walls and 2 hr floor/ceiling assemblies

9.7.1.1, 9.7.3.1	Sprinkler systems required to comply with this NFPA 13. Alternate systems permitted in lieu of sprinkler where appropriate
	No related section

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Group A	903.2.1	Sprinkler system shall be provided throughout floor area, as provided in the section. Not required in areas used exclusively as participant sport areas
Group I	903.2.5	Sprinklers shall be provided throughout building. NFPA 13D or NFPA 13R allowed for Group I-1 facilities
Group S-1	903.2.8	Sprinklers required where area exceeds 12,000 sq. ft., is located more than 3 stories above plane and combined areas on all floors > 24,000
Group S-2	903.2.9	Sprinklers required in buildings classified as enclosed parking garages unless located below R-3 occupancies
Windowless stories	903.2.10	Shall be installed in all locations in this section except R-3 and Group U
During construction	903.2.11	Sprinklers required per IFC
Other hazards	903.2.12	Sprinkler protection provided for ducts conveying hazardous exhausts and commercial cooking operations
Other required suppression systems	903.2.13	Sprinkler system required in buildings and areas in Table 903.2.13
Installation requirements	903.3	Sprinklers must be installed in accordance with NFPA standards

Section	Requirements
12.3.5.2, 12.3.5.3	Assemblies with over 300 occupants shall be protected by sprinkler system unless, (1) multipurpose room less than 12,000 sq. ft. with no exhibit (2) Gyms, pools, skating ring with no seating (3) Stadiums and arenas where sprinklers are ineffective (4) Certain portions of enclosed stadiums and arenas
18.3.5.1, 18.3.5.4	In Type I and II construction, alternative protection measures can be substituted for sprinklers without building classified as nonsprinklered where sprinklers prohibited by AHJ
42.8.3.5	Extinguishing system not required
	No related section
43.6.4.1	Sprinklers shall be provided on highest floor of construction and floor below when work area involves over 50% of aggregate area
	No related section
9.7.1.1	Sprinkler systems required to comply with this NFPA 13.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Exempt locations	903.3.1.1.1	Sprinklers not required in rooms with detection systems where water application will constitute a hazard, fire code official considers sprinklers undesirable, generator/transformer rooms have 2 hr separation, or noncombustible rooms.
Quick-response and residential sprinklers	903.3.2	Shall be installed throughout all spaces in smoke compartment containing sleeping units in Group I-2.
Obstructed locations	903.3.3	Install sprinklers so the water pattern is not obstructed by covered areas greater than 4 ft wide
Actuation	903.3.4	Shall be automatically actuated unless permitted by code
Water supplies	903.3.5	Potable water supply shall be protected against backflow.
Limited area sprinkler systems	903.3.5.1.1	System limited to 20 heads or less connected to the domestic service that complies with the requirement for valves between rise and sprinklers
Hose threads	903.3.6	Fire hose threads and fittings used in connection with sprinkler systems shall be as prescribed by fire code official
Alarms	903.4.2	Approved audible devices shall be connected to every sprinkler system.
Floor control valves	903.4.3	Indicating control valves shall be provided at riser connections on each floor of high-rise

Section	Requirements
	No related section
18.3.5.5	Required in health care occupancies.
	No related section
	No related section
	No related section
9.7.1.2	Sprinkler piping serving not more than 6 sprinklers is permitted to be connected to domestic water supply system with capacity to provide 0.15 gpm to area
	No related section
	No related section
	No related section

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
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Section	Requirements
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Alternative automatic fire-extinguishing systems

Where required	904.2	Fire extinguishing system shall be approved by fire code official
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9.7.3.1	Where extinguishment or control of fire is accomplished by extinguishing system, system shall be installed in accordance with appropriate standard
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Standpipe systems

General	905.1	Shall be provided in new buildings. Fire hoses and threads used in connection with standpipes shall be compatible with fire dept. connections
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9.7.4.2	Standpipe shall be in accordance with NFPA 14
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Required installations	905.3	Installed where required in accordance with NFPA 14. System can be combined with sprinklers. Class III standpipes installed where highest level is 30 ft above or below fire department access
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11.8.2.2	Class I required in high rise
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Location of Class I standpipe hose connections	905.4	Connections provided: 1) in every required stairway, 2) each side of horizontal exit, 3) exit passageway, 4) covered mall building (not applicable), 5) at roof when slope is less than 4:12 located at roof of stairway landing, 6) remote portion of non-sprinklered floor
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	No related section
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Location of Class II standpipe hose connections	905.5	In assembly occupancies with occupant loads > 1,000, hose connections shall be on each side of a stage, on each side of the rear of an auditorium. Class II hose connections shall be in accordance with Section 905.5
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	No related section
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INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Location of Class III standpipe hose connections	905.6	Class III standpipe systems shall have hose connections located as required for Class I systems and in accordance with Section 905.5 and 905.6
Cabinets	905.7	Cabinets containing fire-fighting equipment shall not be blocked from use or obscured from view
Dry standpipes	905.8	Shall not be installed
Valve supervision	905.9	Shall be supervised in the open position except valves to underground key or hub valves and valves locked in normal position and inspected
During construction	905.10 directing to 3311	Buildings over three stories shall have at least one standpipe installed a max. of 40 ft above fire dept. access.
Portable extinguishers-General	906	Must comply with IFC
Fire Alarm and Detection Systems	907	
Construction documents	907.1.1	Documents must be reviewed before system installation
Group B	907.2.2	Install system if occupant load is 500 or more, or if more than 100 persons above or below exit discharge level
Manual fire alarm boxes location	907.3.1	Shall not be more than 5 ft from entrance to each exit. Travel distance to nearest box should not exceed 200 ft

Section	Requirements
	No related section
	No related section
	No related section
43.6.4.4	Building shall be provided with standpipe system up to and including highest work area floor
9.7.4.1	Where required by the sections in this code, portable extinguishers shall be installed, inspected and maintained in accordance with NFPA 10
	No related section
38.3.4.1	System shall be provided if building is two or more stories above exit discharge level, or there are 50 or more occupants above or below level of exit discharge, or occupant load > 300
9.6.2.3	Shall be provided in natural exit access path near each exit

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Height	907.3.2	Shall be between 42 and 48 inches
Power Supply	907.4	Primary and Secondary power shall be provided per NFPA 72
Wiring	907.5	Shall comply with NFPA 72 and ICC Electric Code
Presignal system	907.7	Prohibited unless approved by fire code official and fire department, and where 24 hr supervision is provided
Employee work areas	907.9.1.2	Notification circuits require 20% spare capacity
Groups I-1 and R-1	907.9.1.3	Provided with visible alarm notification appliance activated by in-room smoke alarm and building fire alarm system
Access	907.12	Shall be provided to each detector for inspection, maintenance and testing
Emergency Alarm Systems	908	
Analysis	908.4	Rational analysis supporting design, including type of system, method of operation and construction methods must be developed
Smoke Control Systems	909	
Smoke barrier construction	909.5	Shall comply with 709 and constructed to limit leakage
Pressurization method	909.6	Primary mechanical means is by pressure difference across smoke barriers.
Exhaust method	909.8	Approach permitted for large enclosed volumes when approved by building official
Design Fire	909.9	Shall be based on rational analysis

NFPA 101 2006	
Section	Requirements
	No related section
	No related section
	No related section
	Not permitted in project relevant occupancies.
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
	No related section
8.6.7(5)	Atrium permitted if engineering analysis shows smoke layer maintained 6 ft above highest floor level for a period of 1.5 times the egress time or 20 mins., whichever is greater
	No related section

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Equipment	909.10	Equipment must be suitable for intended use and probable exposure temps
Power systems	909.11	Two sources of power required: primary power from normal building power system and secondary power from a source complying with ICC Electric Code
Engineered ventilation system	909.20.4.2.1	Min. of 90 air changes required per hour exhaust from vestibule and sized for three vestibule simultaneously
Stair pressurization alternative	909.20.5	If fully sprinklered, vestibule not required if stair pressurization is between 0.15 and 0.35 in. with all doors closed under max. stack effect
Standby Power	909.20.6.2	Mechanical vestibule, shaft ventilation systems, and detection systems shall be powered by approved standby power system per Ch 27
Smoke and Heat Vents	910	Smoke and heat vents, or mechanical smoke exhaust systems and draft curtains shall conform to the requirements of section 910

NFPA 101 2006	
Section	Requirements
	No related section
	No related section
	No related section
7.2.3.9.1	Design pressure of not less than 0.5 in. in sprinklered buildings
7.2.3.12	Generator required in 1 hr rated room with 2 hr fuel supply
	Covered by NFPA 204 M

Means of Egress

The Means of Egress section of this document will also compare the two codes by addressing the differences between them rather than iterate all the areas in which they are alike. The IBC discusses the Means of Egress in one chapter (chapter 10) for all occupancies. The NFPA 101 addresses Means of Egress in general terms in one chapter (chapter 7) and then provides additional Means of Egress requirements in each chapter of the individual occupancies. Some of the variations between the two codes are minor; others are extensive and ultimately result in major design differences for a building.

There are components addressed by each code in the respective chapters and sections that make up the Means of Egress. These include, but are not limited to occupant loading, egress width, accessible egress, doors, stairways, ramps, travel distance, corridors, number of exits, and exit passageways. This document comparison will start with definitions and continue with the differences between the codes with respect to the components of Means of Egress.

- **Definitions:** Some of these extensive differences can first be found in the definitions sections of the chapters. All differences are listed below, but the one impacting design and Life Safety would be that found in the IBC as 'Level of Discharge'. It is defined as that level in which the exit discharge is located. The NFPA 101 (3.3.72.1) describes it as being the lowest level having at least 50% of the number of exits and exit capacity discharging to the exterior or the story with the least change in elevation of grade. This difference could become problematic if one code requirement were to be combined with the other code requirement.
- **General Requirement:** The general requirements include such items as ceiling height, protruding objects, head room and floor surface. There are minor differences, but the item that will affect the design of some buildings the most is that related to ceiling height/head room. Both the IBC and the NFPA 101 require a minimum of 7'-6" in ceiling height. Both allow projections into the minimum ceiling height to 6'-8" above finished floor, but the IBC allows 50% of the ceiling to be less than 7'-6". The NFPA 101 requires a stricter 2/3 of the ceiling area to be at least 7'-6".
- **Occupant Load:** Both codes provide an occupancy load table to provide guidance in calculating the loading of building for egress capacity. The IBC load table is Table 1004.1. The NFPA 101 load table is Table 7.3.1.2. The outstanding difference between the two occupant loads is in how each code directs the application of the loading factors. The IBC code states the loading be applied to each portion of the building based on occupancy of each portion. The most restrictive requirements are to be applied to only the portion of the egress system that is used by more than one occupancy. The NFPA 101 also requires the loading be based on each type of occupancy, but requires the restrictive condition of applying the Means of Egress, type of construction and other safeguards of the most restrictive occupancy to the entire building.

- **Egress Width:** Both codes provide tables for calculating the width/capacity of the elements of the Means of Egress. The IBC width table is Table 1005.1. The NFPA 101 table is Table 7.3.3.1. The differences between these two tables will profoundly affect the design of the exiting elements of buildings. As a sample of the differences, the IBC requires 0.20 inches per occupant in sprinklered buildings for stairways and 0.15 inches for other components. The NFPA 101 requires 0.30 inches per occupant in sprinklered buildings for stairways (a 50% increase over the IBC) and 0.20 inches for other components (a 33% increase over the IBC).
- **Accessible Means of Egress:** While both codes require an accessible Means of Egress to accessible spaces, the NFPA 101 provides an exemption for health care occupancies that are provided with an automatic sprinkler protection. An elevator is required as one Means of Egress in both codes in buildings of more than four stories. The IBC provides for an exception in fully sprinklered buildings with horizontal exiting and ramps. The NFPA 101 provides no such exception. Other more minor differences between the two codes are listed in the chart portion of this section.
- **Stairways:** The differences between the two codes with respect to stairway construction requirements are minor in nature. They are listed in the chart portion of this section.
- **Ramps:** The major difference between the ramp components of the two codes is that of width. The IBC requires a minimum of 36 inches, while the NFPA 101 requires a 44 inch minimum.
- **Handrails and Guards:** The differences are minor: 1 inch less encroachment allowed in the NFPA 101. Wood handrails/guards are allowed in any occupancy of the IBC. The NFPA 101 does not allow them in Types I and II construction.
- **Common Path of Travel:** Both codes have requirements of common path of travel to an exit and both provide additional allowances for sprinklered buildings. These distances are similar with the NFPA 101 being somewhat more restrictive in some cases and the IBC in others.
- **Corridors:** Both codes require 8'-0" wide minimum corridors in Health Care facilities in the areas where bed movement is anticipated. The IBC restricts dead-end corridors to 20 feet except in Business occupancies which may not exceed 50 feet. The NFPA 101 restricts all dead-end corridors to 30 feet.
- **Vertical Exit Enclosures:** The major difference between the codes in this component is that of a smoke-proof enclosure for stairways. The IBC is more stringent in that it requires the smoke-proof enclosure for both high-rise and some underground structures. The NFPA 101 only requires the enclosures in underground structures.
- **Exterior Exit Ramps and Stairways:** These exterior exit components are allowed in both codes; however, the IBC does not allow their use in I-2 (hospitals) facilities exceeding 75 feet in height or over 6 stories. The NFPA 101

has no such restriction. Additionally the way the open side of the component is handled is different in each code.

- **Exit Discharge:** The IBC devotes an entire section to this requirement and is concerned with width, location, fire rating and other items. The NFPA 101 only requires that all occupants have safe access to a public way.
- **Assembly:** In the IBC, Group A facilities exceeding 300 persons are required to provide at least 50% of the exit capacity out the main entrance. All Assembly facilities must meet this requirement in the NFPA 101. There is a major difference in the maximum travel distance required. The IBC requires 200 feet for non-sprinklered facilities and 250 feet for sprinklered. The NFPA 101 is less at 150 feet for non-sprinklered facilities and 200 feet for sprinklered. It is the same (400 feet) for smoke-protected facilities in each code. There are some minor differences in calculating the width of aisles in the Assembly occupancy for each code.

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Administration	1001	Altered to
Minimum Requirements	1001.2	Egress cannot be reduced below that required in the code.
Maintenance	1001.3	The International Fire Code dictates how exits are to be maintained.
Definitions	1002	
Aisle		An exit access component that defines and provides a path of egress travel.
Alternating Tread Device		Device used to change levels
Area of Refuge		Location where people unable to use stairs can wait for instruction or rescue.
Egress Court		Court or yard through which one or more exits leads to a public way.
Floor Area, Gross		Floor area inside exterior walls (excluding vent shafts and courts) without deducting any other floor area including columns and thickness of interior walls. If no enclosing walls, usable space under roof.
Level of Exit Discharge		The level at which the exit discharge is located.
General Means of Egress	1003	
Ceiling Height	1003.2	Minimum ceiling height of means of egress is 7 feet. Exceptions based on other code requirements for sloped ceilings, ceilings in dwelling units, projections, stair headroom, and doors.

NFPA 101 2006	
Section	Requirements
7.1.1	Application
	No related section
	No related section
	No related section
7.2.11	Yes, in LSL
3.3.1	Defines areas of refuge and accessible areas of refuge.
3.3.18	NFPA 101 implies that there can be areas of refuge that are not accessible.
3.3.18.1	No related section
3.3.109	Similar; does not address floor area without enclosing walls.
3.3.72.1	Lowest level having at least 50% of the number of exits and capacity of exits discharging to the exterior at grade or the story with the least change in elevation to grade provided no other story has 50% of its exits or egress capacity discharging to the exterior at grade.
7.1.5	Requires seven feet, six inches, but allows projections from ceiling to a height of six feet, eight inches. Requires that 2/3 of the ceiling be seven feet, six inches. Seven feet allowed for existing buildings.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Protruding Objects.	1003.3	Projections into the means of egress must comply with this section.
Headroom	1003.3.1	Objects can extend below the ceiling as long as a clear height of 80 inches is provided and no more than 50% of the ceiling area is reduced in height. Door closers can be as low as 78 inches from the floor.*
Free-Standing Objects	1003.3.2	Objects mounted on posts or pylons can project up to 12 inches when the leading edge of the projection is more than 27 inches and less than 80 inches above the floor.
Horizontal Projections	1003.3.3	Elements cannot project over a walking surface more than four inches when they are located between 27 and 80 inches above the floor. Handrails can project up to four and a half inches from the wall.
Clear Width	1003.3.4	The clear width of an accessible route cannot be reduced by protruding objects.
Floor Surface	1003.4	Floor surfaces required to be securely attached and slip-resistant.
Elevation Change	1003.5	When change in elevation is less than 12 inches, must use sloped surface. Provides exceptions for steps and aisles based on occupancy and other conditions.
Occupant Load	1004	

Section	Requirements
7.1.5	Requires seven feet, six inches, but allows projections from ceiling to a height of six feet, eight inches. Requires that 2/3 of the ceiling be seven feet, six inches. Seven feet allowed for existing buildings.
7.2.2.2.1.1 *	Requires seven feet, six inches, but allows projections from ceiling to a height of six feet, eight inches. Requires that 2/3 of the ceiling be seven feet, six inches. Seven feet allowed for existing buildings. Headroom in industrial equipment access areas must meet NFPA Chapter 40. No related section
7.2.1.2.3	Allows up to a four inch projection from the hinge side of doors between 34 and 80 inches above floor. No related section
7.1.6.4	Required to be uniformly slip-resistant under foreseeable conditions.
7.1.7	Changes in level less than 21 inches are to be by ramp or stair. If a stair is used, the minimum tread depth is 13 inches, with the exception of industrial occupancies.

INTERNATIONAL BUILDING CODE 2006										
Title	Section	Requirements								
Design Load	1004.1	Number of people the egress system is designed to accommodate.								
Maximum Floor Area Allowances Per Occupant	Table 1004.1.1	<p>Loading is by table 1004.1.1 Exception: Where approved by Building Official</p> <table border="0"> <tr> <td>Accessory Storage</td> <td>300</td> </tr> <tr> <td>Locker room</td> <td>50</td> </tr> <tr> <td>Parking garage</td> <td>200</td> </tr> <tr> <td>Warehouse</td> <td>500</td> </tr> </table>	Accessory Storage	300	Locker room	50	Parking garage	200	Warehouse	500
Accessory Storage	300									
Locker room	50									
Parking garage	200									
Warehouse	500									
Increased Occupant Load	1004.2	Allows the occupant load to exceed the number based on Table 1004.1.1, provided the occupant load does not exceed one person per seven square feet and code requirements for egress are met.								
Outdoor Areas	1004.8	Outdoor areas used by occupants must be provided with exits based on the requirements of the code. Occupant load is to be assigned by the building official based on anticipated usage. Exceptions provided for areas used exclusively for service of the building.								
Multiple Occupancies Egress	1004.9	Egress requirements must be applied to each portion of the building based on the occupancy. The most restrictive requirements are to be applied to portions of the egress system that are used by more than one occupancy.								
Egress Width	1005	Table 1005.1								

NFPA 101 2006	
Section	Requirements
3.3.144.2	Total number of persons that might occupy a building or portion of a building at anyone time
Table 7.3.1.2	<p>Similar; some differences in loading factors for various uses. Refers to NFPA 12.1.7.2 and 13.1.7.2 for loading of waiting areas in assembly occupancies. Storage in other storage or mercantile 500</p> <p>None Listed</p> <p>No requirement 4.2.8.1.7</p> <p>None Listed</p>
7.3.1.3.1 7.3.1.3.2 12.1.7.1 13.1.7.1	Limits only the maximum density of occupants in assembly occupancies.
	No related section
Non-separated 6.1.14.3.2 *	The means of egress, type of construction protection and other safeguards in the building shall comply with most restrictive.
	Table 7.3.3.1

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Door Encroachment	1005.2	Doors swinging into a path of travel can not reduce the required egress width by more than 50%. A door may project up to seven inches into the required egress width when fully open.
Accessible Means of Egress	1007	
Accessible Means of Egress Required	1007.1	Accessible means of egress required for accessible spaces. When more than one exit is required from the space, each accessible area must access two means of egress. Alterations to existing buildings need not comply.
Elevators Required	1007.2.1	An elevator is required as one accessible means of egress when accessible floors are located four or more stories above or below the level of exit discharge. Exceptions are provided for fully sprinklered buildings with horizontal exiting and ramps.
Exit Stairways	1007.3	Enclosed stairways must have clear width of 48 inches and meet requirements for providing an accessible area of refuge. Exceptions made for stairways in fully sprinklered buildings, serving a single guestroom, and in open parking garages.
Platform Lifts	1007.5	Platform lifts may not be part of accessible means of egress unless complying with Section 1109.7.
Area of Refuge	1007.6	Required areas of refuge must have accessible means of egress and meet requirements for maximum travel distances. Direct access must be provided to enclosed stairway or elevator.

Section	Requirements
7.2.1.4.4	Similar; exception for existing buildings does not limit the obstruction during the swing of a door.
7.5.1.1.1	Exceptions exempt health care occupancies that are provided with automatic sprinkler protection.
7.5.4.7	No exceptions for stories of sprinklered buildings with horizontal exits or ramps.
7.5.4.4 7.2.12.2.3	Exceptions may apply based on the use of horizontal exits and existing stairs.
	No related section
7.5.4.9	Stories of buildings that are fully sprinkler-protected are exempt. See NFPA 7.2.12.1.

INTERNATIONAL BUILDING CODE 2006		
Title	Section	Requirements
Separation	1007.6 .2	Separation required from the remainder of the building by smoke barriers unless within a stairway enclosure or in fully sprinklered buildings.
Signage	1007.7	Signs are required to identify the location of accessible means of egress at elevators and exits that provide access to an accessible area.
Exterior Area for Assisted Rescue	1007.8	Exterior areas for assisted rescue must be open to the outside.
Openness	1007.8 .1	Requires 50% openness of exterior area of refuge.
Doors, Gates and Turnstiles	1008	
Size of Doors	1008.1 .1	Minimum clear width of door openings is 32 inches, and maximum width of a door leaf is 48 inches. If two leaves, at least one must provide 32 inch clear width. Minimum door height is 80 inches. Doors in Group I-2, used for movement of beds shall provide a clear width not less than 41.5 inches.
Special Doors	1008.1 .3	Provides criteria for special doors and grilles.
Revolving Doors	1008.1 .3.1	Revolving doors must be able to fold tightly and must provide egress path 36 inches wide. Location and revolution requirements also addressed.
Egress Component	1008.1 .3.1.1	Identifies additional criteria for revolving doors when they are used as part of the means of egress. Maximum of 50% of the egress capacity is counted, and the collapsing force cannot exceed 130 pounds applied within three inches of the edge.

NFPA 101 2006	
Section	Requirements
7.2.12.3.4	Allows the continued use of existing 30-minute fire-rated partitions to create the separation.
	No related section
	No related section
	No related section
7.2.1.2.4	Additional Exceptions include: exit access doors serving a room not exceeding 70 sq.ft. and not required to be accessible to person with severe mobility impairments shall be not less than 24 in.; doors serving a building or portion thereof not required to be accessible to persons with severe mobility impairments shall be permitted to be 28 inches.
	No related section
7.2.1.10.3	Includes an exception that exempts the requirement for swinging door within 10 feet of the revolving door under specific conditions.
7.2.1.10.2	Similar; also allows the specific occupancy chapter to allow use of revolving doors as an egress component.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Power-Operated Doors	1008.1 .3.2	Power-operated doors must be capable of opening manually if there is a power failure. Maximum force to open must comply with Section 1008.1.2.
Horizontal Sliding Doors	1008.1 .3.3	Horizontal sliding doors may be used as part of means of egress (except in Group H), if meeting requirements for opening and fire protection.
Access-Controlled Egress Doors	1008.1 .3.4	Entrance doors may use control system if equipped with sensors and unlocking features meeting specific requirements.
Security Grilles	1008.1 .3.5	Security grilles may be used in Groups B and S if easily opened in an emergency. No more than half of required means of egress may have grilles.
Landings at Doors	1008.1 .5	Landings must be at least as wide as the stairway or door. Doors must not reduce the landing size by more than 50% in any part of the swing. Landing length must be at least 44 inches. Provides specific exceptions based on occupancy.
Thresholds	1008.1 .6	Maximum height of thresholds is 0.75 inches for sliding doors in dwelling units, and 0.5 inches for other doors. Thresholds exceeding 0.25 inches must be beveled.
Hardware Height	1008.1 .8.2	Door hardware must be between 34-48 inches above floor surface. Security locks may be at any height.

Section	Requirements
7.2.1.9.1	Similar; requires signage instructing occupants to push or slide doors open in an emergency, depending on the style of door.
7.2.1.14	Similar; less comprehensive.
7.2.1.6.2 12.2.2.2.5 13.2.2.2.5 18.2.2.2.4 19.2.2.2.4 20.2.2.2 21.2.2.2 32.3.2.2.2 33.3.2.2.2 38.2.2.2.5 39.2.2.2.5 42.2.2.2.3	Chapters 18, 19, 32 and 33 permit only one access control egress door in each egress path*
7.2.1.4.1 36.2.2.2.6 37.2.2.2.6 38.2.2.6 39.2.2.6	Requires signage at grilles indicating they are to remain open when the building is occupied. Security grilles are only allowed in business occupancies.
7.2.1.3	Similar; exceptions are made for existing buildings.
7.2.1.3	Limits the height of a threshold to one-half inch.
7.2.1.5.9.3	Similar; includes exception for egress doors in individual dwelling units. Limits the height of security devices.

INTERNATIONAL BUILDING CODE 2006

NFPA 101 2006

Title	Section	Requirements
Locks and Latches	1008.1 .8.3	Egress doors must be operable from inside without a key or special knowledge. Exceptions based on occupancy and arrangement are provided.
Bolt Locks	1008.1 .8.4	Bolt locks are prohibited, except for use on exits from individual dwelling units and inactive leaves of pairs of doors to storage rooms.
Panic and Fire Exit Hardware	1008.1 .9	Panic and fire exit hardware is required in Group A occupancies with an occupant load of 100 or more. Maximum opening force permitted is 15 pounds.
Gates	1008.2	Gates used as part of the egress system must comply with requirements for doors. Gates in fences surrounding a stadium are allowed to exceed the 48 inch maximum leaf width.
Turnstiles	1008.3 *	Turnstiles must not obstruct egress. If they operate in the direction of egress, they may egress up to 50 people if the specific provisions of this section are met.
Stairways	1009	
Stairway Width	1009.1	Requires a minimum stairway width of 44 inches. Exceptions are provided for stairways serving an occupant load of 50 or less (36 inches), spiral stairways, and aisle stairs.

Section	Requirements
7.2.1.5.1 7.2.1.5.5 18.2.2.2.2 18.2.2.2.3 18.2.2.2.4 19.2.2.2.2 19.2.2.2.3 19.2.2.2.4 22.2.11.2 23.2.11.2 36.2.2.2.2 37.2.2.2.2 38.2.2.2.2 39.2.2.2.2	Similar; exceptions are provided for health care and detention occupancies. Occupancy chapters also allow locking of exterior doors under specific conditions, such as in mercantile and business occupancies.
	No related section
7.2.1.7 12.2.2.2.3 13.2.2.2.3	Similar; NFPA occupancy chapters identify when panic hardware is required.
	No related section
7.2.1.11.1	Cannot be used in assembly occupancy 50% capacity. Each restricted. To 50 people. Exception allows their use in business occupancies because they allow the use of revolving doors for egress.
7.2.2.1 Table 7.2.2.2.1(a) 7.2.2.2.1(b)	Similar; provides requirements for new and existing stairs.

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Title	Section	Requirements
Stair Treads and Risers	1009.3	Riser height limited to between 4 and 7 inches. Treads must be at least 11 inches deep.
Stairway Construction	1009.5	Material must be consistent with the type of construction. Wood handrails are permitted in any type of construction.
Alternating Tread Device	1009.9	Alternating tread devices may only be used as part of the means of egress in specified occupancies, including mezzanines in Groups F, H, and S provided they are 250 square feet or less and serve no more than five people, and I-3 guard towers and similar facilities.
Treads of Alternating Tread Devices	1009.9 .2	Establishes minimum tread depths, widths, and projection. Sets riser height maximum of 9.5 inches.
Ramps	1010	
Slope	1010.2	Ramps used for egress must have a maximum slope of 1:12, and other ramps, 1:8.
Vertical Rise	1010.4 *	Maximum rise of a ramp is 30 inches between landings.
Minimum Dimensions	1010.5	Criteria for dimensions for ramps must comply with this section.
Width	1010.5 .1	Requires 36 inches clear width minimum for means of egress ramps. Must not be narrower than width required for corridors (Section

Section	Requirements
7.2.2.2.1 Table	Same for new stairs only. Existing stairs are allowed up to eight-inch risers, and treads as small as nine inches.
7.2.2.2.1(a) Table	Continued use of existing stairs is based on occupancy.
7.2.2.2.1(b)	Required to be of permanent fixed construction. Stairs in Types I and II must be of noncombustible construction. No exception made for handrails.
7.2.2.3.1.1	
7.2.2.3.1.2	
7.2.11.1	Similar; use limited to access to unoccupied roofs, second means of egress from storage elevators per NFPA Chapter 42, means of egress from towers and machinery platforms when serving a maximum of three occupants, and as a second means of egress from boiler rooms or similar spaces when the maximum occupant load is three people.
7.2.11.2*	Similar; design criteria is more detailed.
7.2.5.1	Exceptions allow greater slopes for assembly occupancies and existing ramps when approved by AHJ.
7.2.5.2 Table	
7.2.5.2(a) Table	
7.2.5.2(b)	
7.2.5.2 Table	Shall not apply to industrial equipment access areas, assembly occupancies, or ramps providing access to vehicles, vessels, mobile structures, and aircraft.
7.2.5.2(a)	No related section
7.2.5.2 Table	
7.2.5.2(a) Table	
7.2.5.2(b)*	Requires 44 inch minimum width for new ramps.

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Title	Section	Requirements
		1017.2).
Restrictions	1010.5 .3	Ramps must not be reduced in width in the direction of exit travel. Doors must not reduce the clear width to less than 42 inches. Projections are not allowed into the required ramp or landing width. (handrail 4.5" 1012.7)
Length	1010.6 .3	Landings must be at least 60 inches.
Change in Direction	1010.6 .4	Landings that provide for change in direction between ramp runs must be at least 60 inches by 60 inches.
Ramp Construction	1010.7	Material must be consistent with the type of construction. Wood handrails are permitted in any type of construction.
Handrails	1010.8	Handrails required on both sides for ramps with rise exceeding six inches.
Edge Protection	1010.9	Protection required for ramps. Provides three exceptions.
Curb, Rail, Wall or Barrier	1010.9 .1	Opening along edge of ramps limited to four inches within four inches of the ground.
Exit Signs	1011	
Where Required	1011.1	Exit signs must comply with this section.
Exit Sign Illumination	1011.5 .2	Exit signs must be illuminated and meet requirements for foot-candle levels. An exception is provided for self-luminous exit signs and tactile signs.
Handrails	1012	
Projections	1012.7	Four and a half inches maximum projection allowed at or below handrail height.
Guards	1013	

Section	Requirements
Table 7.2.5.2(a)	Three and a half inches allowed to project on each side at or below handrail height.
7.2.5.3.2	Similar; existing approved landings are excepted.
7.2.5.3.2.6	All landings are required to be 60 inches long in the direction of travel. No decrease in width permitted except in existing conditions.
7.2.5.3.1*	Required to be permanent fixed construction. Stairs in Types I and II must be noncombustible. No exception for handrails.
12.2.5.6.8	Ramped aisles in assembly occupancies having a gradient exceeding 1 in 20 shall be provided with handrails at one side or along the centerline.
7.2.5.3.3	Requires curbs, walls, railings, or projecting surfaces at edges of ramps.
7.2.5.3.3	If curbs or barriers are used as edge protection, they are required to be not less than four inches.
7.10.1.1	Requires exit signage when required by specific occupancy chapters.
7.10.5.1	Similar; less comprehensive.
7.10.5.2	Refers to NFPA 7.8 for illumination.
7.3.2*	Maximum projection of three and a half inches at or below handrail height.

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Title	Section	Requirements
Where Required	1013.1	Guards required at open-sided walking surfaces more than 30 inches above the adjacent floor or grade in compliance with Section 1607.7
Exit Access	1014	
General	1014.1	Requires compliance with Sections 1014 through 1003 and applicable provisions of Sections 1003 through 1013.
Exit and Exit Access Doorways	1015	
Exit or Exit Access Doorways Required	1015.1	Two exits are required from a space if occupant load exceeds Table 1015.1
Boiler, Incinerator, and Furnace Rooms	1015.3	Rooms greater than 500 square feet with equipment exceeding 4000,000 BTUs require two exits separated by half the maximum dimension of the room. The second exit can be fixed ladder or alternating tread device.
Two Exits or Exit Access Doorways	1015.2 .1	Separation of exits must be half the maximum diagonal dimension of the space or building. Exceptions allow for measurement along the path in a corridor if it is 1-hour fire-rated. Separation is reduced to 1/3 the diagonal if the building is sprinklered.
Exit Access Travel Distance.	1016	

Section	Requirements
7.2.5.4	Similar; exceptions provided for assembly occupancies.
7.5 Arrangement of Means of Egress	No related section
7.4.1.1	Two exits required from any portion of a building. Exception allows for one exit when permitted by an occupancy chapter. Single exit allows for balconies and mezzanines when the common path of travel limitations of occupancy chapters are met. No provision for room size and max. BTUs.
7.5.1.3.2	Similar; also makes an exception for existing buildings.

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Title	Section	Requirements
Exterior Egress Balcony Increase	1016.3	Allows an increase of maximum travel distance of up to 100 feet when the last portion of travel is on an exterior egress balcony.
Exit Access	1014	
Common Path of Egress Travel	1014.3	Exceptions allow up to 100 feet based on occupancy and sprinkler protection. Business <30 people Unsprinklered 100 ft Low Hazard Storage Unsprinklered 75 ft Low Hazard Storage Sprinklered 100 ft Ordinary Hazard Storage Unsprinklered 75 ft Parking Structures Unsprinklered 75 ft Institutional Unsprinklered 75 ft Institutional Sprinklered 100 ft
Multiple Tenants	1014.2 .1	Requires access to exits by all tenants without having to pass through another tenant's space
Group I-2	1014.2 .2	Each habitable room or suite must have an exit access door directly to a corridor. Provides exceptions to allow egress through intervening rooms. Limits the size of suites and travel distances.
Aisles	1014.4	Unobstructed aisles are required for exit access in areas with seating and displays. Doors and handrails cannot project into the required width by more

Section	Requirements
7.5.3	Provides criteria for exterior exit access, but does not provide increases for travel distance.
12.2.5 13.2.5 23.2.5 28.2.5 29.2.5 30.2.5 31.2.5 32.3.2 33.3.2 36.2.5 37.2.5 38.2.5 42.2.5	Common path of travel requirements vary by occupancy. NFPA appendix Table 7.6.1 provides summary of requirements by occupancy. 75 ft No Requirement No Requirement 50 ft 50 ft No Requirement No Requirement No related section
18.2 19.2	Includes detailed requirements for egress in new and existing health care facilities.
7.3.4.1 18.2.3.4	Aisles required for exit access shall not be less than 8 ft in clear width unless the minimum corridor width is 6 ft and projections do not exceed 6 inches.

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Section	Requirements
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than seven inches.

Aisles in Groups B	1014.4 .1	Requires 36-inch minimum aisle width when furniture and fixtures are on one side, and 44 inches when they are on both sides of the aisle. Exception for nonpublic aisles, 28 inches allowed when serving less than 50 people and the area is not required to be accessible.	7.3.4.1 36.2.5.5 36.2.5.6 37.2.5.5 37.2.5.6	NFPA 7.3.4.1 provides minimum widths for means of egress and refers to the occupancy chapters. Aisle requirements are focused on assembly occupancies.
Nonpublic Areas		Included in exception for 1014.4.1	7.3.4.1	NFPA 7.3.4.1 provides minimum widths for means of egress and refers to the occupancy chapters. Aisle requirements are focused on assembly occupancies.
Table and Seating Accessway Length	1014.4 .3.3	Requires maximum of 30 feet until reaching exit paths.	12.2.5.7.4	Requires 36 feet maximum from a seat to an aisle or egress doorway.
Corridors Construction	1017 1017.1	Corridors within I-2 occupancy, serving more than 10 persons is not required to have a fire resistance rating when equipped with automatic sprinklers.	7.1.3.1 18.3.6.2.2	Exit access corridors must be separated from other spaces by 1-hour fire-rated construction when serving 30 or more people. Exception: No fire-resistance required for health care occupancies. No related section
Corridor Fire-Resistance Ratings	Table 1017.1	Identifies the required fire rating of corridors based on occupancy, occupant load, and whether the building is sprinklered.		
Corridor Width	1017.2	Requires minimum width of at least 44 inches. Exception: 96 inches in Group I-2 areas where required for bed movement	7.3.4.1 18.2.3.4	Not less than 8 ft in width unless minimum corridor width is 6 ft.
Dead Ends	1017.3	Corridors must not have dead ends greater than 20 feet long. Exceptions for Group B.	18.2.5.2	Dead-end corridor shall not exceed 30 ft

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Title	Section	Requirements
Air Movement in Corridors	1017.4	Corridors may not be used as air ducts or plenums. Exceptions allow the use of the corridor for makeup air to rooms opening into it under specific conditions. The space above the ceiling may be used as a plenum under specific conditions.
Corridor Continuity	1017.5	Rated corridors must be continuous to an exit without intervening rooms. Exception: Foyers, lobbies and similar spaces required for the corridor cannot be construed as intervening rooms.
Exits	1018	
Exterior Exit Doors	1018.2	Requires at least one door to comply with Section 1008.1.1, which provides requirements for door size.
Detailed Requirements	1018.2 .1	Requires compliance with Section 1008.1.
Arrangement	1018.2 .2	Exterior exit doors must lead to exit discharge or public way.
General	1018.1	Requires compliance with Sections 1018 through 1023 and Sections 1003 through 1013 as applicable. Use of exits for any purpose that would interfere with egress is prohibited. The protection of an exit cannot be reduced once it is established.
Numbers of Exits and Continuity	1019	
Helistops	1019.1 .2	Requires at least two exits. Landing area less than 60 feet long or less than 2000 square feet can utilize a fire escape or ladder for the second exit.
Buildings with One Exit	1019.2	Group I occupancy is permitted to have one exit if it is one story above grade with a maximum of 10 occupants per floor and

Section	Requirements
	No related section
7.5.1.2	Exception: Corridors not required to be rated are permitted to discharge into open floors
	No related section.
	No related section.
	No related section.
	No related section.
	No related section.
7.4.1.1 directing to 18.2.4	Not less than 2 exits shall be provided for each floor of the building

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travel distance of 75 ft

No related table

Buildings with One Exit	Table 1019.2	Table is the companion to Section 1015.1
Vertical Exit Enclosures	1020	
Enclosures Required	1020.1	Exit stairs within buildings must be enclosed and have fire rating of two hours if four or more stories. Rating of one hour permitted for fewer stories. Provides exceptions based on occupancy and other conditions.
Stairway Floor Number Signs	1020.1.6	A sign is required at each landing of stairways serving more than three stories. Information must include floor level, stairway, top and bottom levels of stairway, access to roof, and direction to exit discharge.
Smoke-Proof Enclosures	1020.1.7	Required for stairways in high-rise and underground structures that serve stories located 75 feet above fire department vehicle access or 30 feet below exit discharge.
Exit Passageway	1021	
Exit Passageway - Width	1021.2	Width must be at least 44 inches. Exception: if serving occupant load less than 50, minimum width may be 36 inches. Width must be unobstructed.
Construction	1021.3	Requires minimum 1-hour fire-rated construction, but not less than that of exit enclosures to which it is connected.
Openings and Penetrations	1021.4	Openings into exit passageways are limited to those required for egress. When exit passageways are used to provide egress for enclosed stairways, a fire-rated door is required to

7.1.3.2.1
7.1.3.2.3
28.2.2.1.2
29.2.2.1.2
30.2.2.1.2
31.2.2.1.2

Similar; exceptions made for existing buildings when sprinklered. Disallows use of exit enclosure for any other purpose.

7.2.2.5.4 Required for enclosed stairs serving five or more stories.

7.2.3.1 Only required for exits in underground structures.

7.2.6.4 Required to accommodate the aggregate width of all exits served by the passageway.

7.2.6.2
7.1.3.2 Requires the same fire-rated construction and opening protection as stair enclosures.

7.2.6.2
7.1.3.2 Requires the same fire-rated construction and opening protection as stair enclosures. Exceptions allow fire windows and existing wired glass.

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separate the stairway enclosure from the passageway. Elevators are not allowed to open into exit passageways.

Penetrations 1021.5 Penetrations into exit passageways other than for equipment serving the passageway are not allowed. Must comply with Section 712.

7.2.6.2 Requires the same fire-rated construction and opening protection as stair enclosures.
6.1.3.2

Exterior Exit Ramps and Stairways 1023

General 1023.1 Requires compliance with this section. Exceptions made for exterior stairways serving stadiums where all portions of the egress are outside.

7.2.2.6 Outside stairs allowed to lead to roof or other building sections where construction is fire-resistive and path leads to egress

Use in a Means of Egress 1023.2 Exterior exit stairs are not allowed for egress from Group I-2 or for buildings more than 75 feet in height or exceeding six stories.

7.2.2.6.2 Does not limit use.

Open Side 1023.3 Requires at least 35 square feet of open area on at least one side of exterior stairs. Open area must be at least 42 inches from adjacent floor or landing.

7.2.2.6.6 Required to be at least 50% open on one side and prevent the accumulation of smoke.

Side Yards 1023.4 The open side must front on a yard, court, or public way.

No related section.

Exit Discharge 1024

Exit Discharge Location 1024.4 Must be located at least 10 feet from lot lines or adjacent buildings on the same lot (see Section 1023.3).

No related section.

Exit Discharge Components 1024.4 Must be arranged to limit build-up of smoke or other products of combustion.

No related section.

Width 1024.5 Width of egress courts must be at least 44 inches. Width must accommodate the occupant load.
.1

7.7.1 Required to provide all occupants with safe access to a public way.

Construction and Openings 1024.5 Walls must be at least 1-hour fire-rated with 3/4-hour opening protection when less than 10 feet wide and
.2

No related section.

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serving 10 or more occupants.

Assembly	1025	
Assembly Main Exit	1025.2	Group A facilities exceeding 300 occupants require a main exit capable of 50% of the load. Exception allows distribution of the exit capacity around the perimeter of the building if meeting specific requirements.
Foyers and Lobbies	1025.4	Spaces used to queue occupants until seats are available shall not diminish the required clear width of egress. Permanent separation of such spaces from egress paths and access to main exits is required.
Interior Balcony and Gallery Means of Egress	1025.5	Two means of egress required when serving over 50 people (one on each side). One must lead directly to an exit.
Enclosure of Balcony Openings	1025.5 .1	Vertical exit enclosures required, in compliance with Section 1020.1. Exceptions are allowed for theaters, churches, and auditoriums.
Width of Means of Egress for Assembly	1025.6	Aisle clear widths must meet Sections 1025.6.1 - 1025.6.3, depending on smoke protection
Without Smoke Protection	1025.6 .1	Provides detailed criteria for calculating the required egress width when seating is without smoke protection.
Smoke-Protected Seating	1025.6 .2	References Table 1025.6.2 for determining egress width for smoke-protected seating. Requires that a Life Safety Evaluation complying with

12.2.4 13.2.4	Required for all assembly occupancies.
12.1.7.2 13.1.7.2	Similar; requires exits to be provided from these spaces based on three square feet per person (in addition to other exits from the assembly areas).
12.2.4.3 13.2.4.3 12.2.4.4 13.2.4.4 12.2.4.5 13.2.4.5	For mezzanines with occupant load of less than 50 people, one exit is allowed. For occupant loads between 50 and 100, two exits are required, but both can be to the floor below. For occupant loads of 100 or more, exits conforming to NFPA 7.4.1 are required.
12.3.1 13.3.1	Similar; also allows stairs from lighting and access catwalks to be open, and those allowed under NFPA 8.2.5.8.
	No related section.
12.2.3.3	Allows egress width to be in accordance with NFPA 7.3 or 12.2.3.1. The factors modifying the width of ramps differ.
12.4.2.3 13.4.2.3	Similar; requires an increase in width based on a formula when risers are greater than seven inches.

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NFPA 101 be performed if Table 1025.6.2 factors are used.

Roof Height	1025.6 .2.2	Requires minimum of 15 feet above highest smoke protected seating area. Exception provided for exterior canopies.
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	No related section.
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Automatic Sprinklers	1025.6 .2.3	Sprinklers are required in enclosed areas within facilities utilizing smoke-protected seating. Exceptions provided for entertainment or performance areas if the roof is at least 50 feet above the floor. Exceptions also made for press boxes and storage facilities less than 1,000 square feet in area.
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12.4.2.1 13.4.2.1	Similar; allows omission of sprinklers over performance and seating areas based on engineering analysis. No exemptions for press boxes and storage facilities.
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Width of Means of Egress for Outdoor Smoke-Protected Assembly	1025.6 .3	Provides egress factors for exit width from outdoor smoke-protected assembly seating. Requires 0.08 inches per person for aisles and stairs and .006 inches per person for ramps, corridors, and tunnels.
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	No related section.
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Travel Distance	1025.7	Requires maximum travel distance of 200 feet in non-sprinklered buildings, and 250 feet in sprinklered. Exceptions are provided for smoke-protected seating (measured to the concourse or vomitory) and open-air seating (400 feet to the exterior).
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12.2.6 13.2.6 12.4.2.8 13.4.2.8	Similar; maximum travel distance is 150 feet for unsprinklered and 200 feet for sprinklered. Smoke protected seating may have 400 feet to vomitory or egress concourse.
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Minimum Aisle Width	1025.9 .1	Requirements range from 23 to 48 inches, depending on the configuration.
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12.2.5.6.3 13.2.5.6.3	Similar; smaller widths are permitted in existing assembly occupancies.
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Uniform Width	1025.9 .4	When egress is in two directions in an aisle, the width must be uniform.
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12.2.5.4.5 13.2.5.4.5	Similar; provides exceptions for certain aisles.
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Assembly Aisle Termination	1025.9 .5	Aisles must end in a cross aisle or other component providing exit access. Exceptions made for limited dead ends and smoke-
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	No related section.
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protected seating meeting specific requirements.

Assembly Aisle Obstructions 1025.9 .6 Handrails are the only allowable obstruction to required width of aisles.

No related section.

Risers 1025.1 1.2 Riser height limited to between 4 and 8 inches. Exceptions provided for specific conditions. Allows up to 9-inch risers when required to accommodate adjacent seating.

12.2.5.6.6 Similar; includes exceptions for telescoping seating.
13.2.5.6.6

Seat Stability 1025.1 2 Seats are required to be fixed to floor. Provides exceptions for various configurations.

No related section.

Handrails 1025.1 3 Required for aisle stairs and ramps with slopes exceeding 1:15. Ramps with slopes not exceeding 1:8 with seats on both sides are not required to have handrails. Exception allowed if guards meeting graspability requirements are provided at the side of the aisle.

12.2.5.6.8 Required for ramps having a gradient in excess of 1:12.
13.2.5.6.8 Exceptions similar to IBC.

Assembly Guards 1025.1 4 Assembly guards shall comply with Sections 1025.14.1 through 1025.14.3

No related section.

Cross Aisles 1025.1 4.1 Guards meeting Section 1013 are required at cross aisles. If the cross aisles is less than 30 inches above the adjacent floor, the guard must be at least 26 inches above the floor. Exceptions exempt guard requirements if the backs of seats on the cross aisle are at least 24 inches above the floor

12.2.11.1.3 Similar; requirements for existing assembly varies.

Minimum Size 1026.2 Openings must be at least 5.7 square feet. Five square feet required for ground floor openings.

24.2.2.3 Similar; does not reduce the required size for ground floor openings.
32.2.2.3
33.2.2.3

**IBC TABLE 1005.1
EGRESS WIDTH PER OCCUPANT SERVED**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM	
	Stairways (inches per occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress components (inches per occupant)
Occupancies other than those listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, and H-4	0.7	0.4	0.3	0.2
Institutional: I-2	NA	NA	0.3	0.2

For SI: 1 inch – 25.4 mm. NA = Not applicable

- a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.1.1 or 903.3.1.2

**NFPA 101 TABLE 7.3.3.1
Capacity Factors**

AREA	Stairways (width per person)		Level Components and Ramps (width per person)	
	In.	mm	In.	mm
Board and care	0.4	10	0.2	5
Health care, sprinklered	0.3	7.6	0.2	5
Health care, non sprinklered	0.6	15	0.5	13
High hazard contents	0.7	18	0.4	10
All others	0.3	7.6	0.2	5



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