

2015 IBC Transition from the 2009 IBC



Description

- This seminar will assist participants in implementing the transition from the 2009 IBC to the 2015 IBC.
- It will include relevant changes in the 2012 IBC. This interactive training will focus on the key changes presented in the participant material.
- Knowledge review questions will provide opportunity for participants to discuss and consider the changes.



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Objectives

- Upon completion, participants will be better able to:
 - Identify the key differences between the 2009 IBC, 2012 IBC, and the 2015 IBC.
 - Explain the differences between the current and previous editions.
 - Apply the code requirements for design, plan review and inspection.



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Welcome

- Rules for the course, breaks, restroom location.
- Introduction of instructor and participants.
- Other



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303.1.3 Assembly rooms associated with Group E occupancies 2012



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303.3, 306.2 2012 Occupancy classification of food processing facilities and commercial kitchens

- The appropriate occupancy classification of a commercial kitchen has been clarified based upon the kitchen's relationship, or lack of a relationship, to dining facilities.



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Occupancy classification of food processing facilities and commercial kitchens 2015

- **304.1:** Small (2,500 sq. ft. or less in area) food processing establishments and commercial kitchens not associated with dining facilities are now considered as Group B occupancy.
- **306.2:** A classification of Group F-1 is now applied only to larger-sized (over 2,500 sq. ft. in area) food processing facilities and commercial kitchens not associated with dining facilities.

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304.1 Training and skill development facilities 2015

- The Group B classification for training and skill development uses has been clarified to address the ages of the occupants using the facility, the occupant load limitation where the facility is used for assembly purposes, and the types of permitted uses.

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Facilities generating combustible dusts

2012

Table 307.1(1), Section 307.4

- In the determination of occupancy classification for a facility where combustible dusts are anticipated, a technical report and opinion must now be provided to the building official that provides all necessary information for a qualified decision as to the potential combustible dusts hazards.



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Facilities generating combustible dusts

2012

Table 307.1(1)

[F] TABLE 307.1(1)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD^{a, b, c, d, e}

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE ^a			USE-CLOSED SYSTEMS ^b		USE-OPEN SYSTEMS ^c		
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible dust	N/A	H-2	Note q	N/A	N/A	Note q	N/A	N/A	Note q	N/A
Combustible liquid ^d	II	H-2 or H-3	N/A	120 ^{e, f}	N/A	N/A	120 ^g	N/A	N/A	30 ^g
	IIIA IIIB	H-2 or H-3 N/A	N/A	330 ^{e, f} 13,200 ^{h, i}	N/A	N/A	330 ^g 13,200 ^g	N/A	N/A	80 ^g 3,300 ^g
Combustible fiber	Loose Baled ^e	H-3	(100) (1,000)	N/A	N/A	(100) (1,000)	N/A	N/A	(20) (200)	N/A
Consumer fireworks	1.4G	H-3	125 ^{e, f, i}	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cryogenics	N/A	H-3	N/A	4 ^{e, f}	N/A	N/A	4 ^{e, f}	N/A	N/A	1 ^g



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308.2, 202 Definition of care facilities

2012



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308.3 Group I-1 occupancy classification

2015

- The uses permitted in Group I-1 custodial care facility have been expanded to include care recipients who may need a limited degree of verbal or physical assistance if responding to a fire or other emergency situation.



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308.4 Group I-2 occupancy classification 2015

Occupancy classification for medical care facilities

- Two basic conditions of Group I-2 medical care uses that have previously been regulated together as a single category have been created, dividing the classification into short-term care facilities, such as, hospitals, and long-term care facilities, such as nursing homes.



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310.5 Group R-3 lodging house 2015



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Group R-4 occupancy classification

2012 IBC	2015 IBC
310.6	310.6
The allowance for constructing Group R-4 supervised residential facilities under the IRC has been eliminated.	The uses permitted in a Group R-4 custodial care facility have been expanded to include care recipients who may need a limited degree of verbal or physical assistance while responding to a fire or other emergency situation.



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311.1.1 Classification of accessory storage spaces 2015



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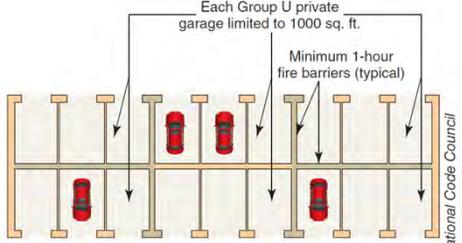
402 Open mall buildings 2012

- A variety of changes have now been made to clarify the open mall building provisions that were originally developed for covered mall conditions.



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Private garages – Definition, floor-area limitation 2015



Each Group U private garage limited to 1000 sq. ft.
Minimum 1-hour fire barriers (typical)

Example: If non-sprinklered building of Type VB construction, total allowable area limited to 5500 sq. ft. plus any applicable frontage increase

Private garage floor-area limits

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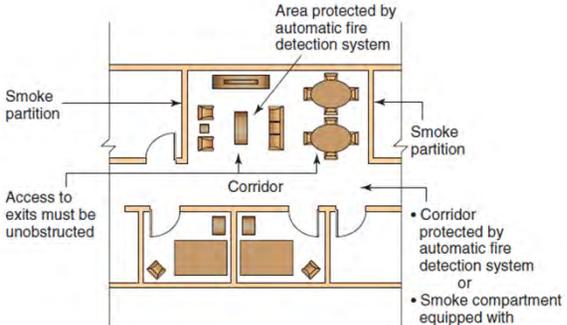
406.4 Public parking garage 2012

- Those parking structures that fall outside of the scope of Section 406.3 regulating private parking garages are now identified as public parking garages.



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407.2.5 Group I-2 shared living spaces 2015



Area protected by automatic fire detection system

Smoke partition

Corridor

Access to exits must be unobstructed

- Corridor protected by automatic fire detection system or
- Smoke compartment equipped with quick-response sprinklers

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407.2.6 Group I-2 cooking facilities

2015

Automatic fire-extinguishing system
Domestic cooking hood required
Domestic cooking facility
Corridor area clearly identified
Access to exits available
Portable fire extinguisher
Corridor
Group I-2 domestic cooking facilities

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407.5 Group I-2 cooking facilities Maximum size of Group I-2 smoke compartments

2015

Travel distance from any point to smoke barrier door 200 feet maximum
Smoke barrier
200 ft. max.
200 ft. max.
200 ft. max.
200 ft. max.
Minimum of 2 smoke compartments
Maximum size of compartment 40,000 sq. ft.
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Group I-2, Condition 2 smoke compartments

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410.6.3, 202 Technical production areas

2012

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412.7 Travel distance in aircraft manufacturing facilities

2012

TABLE 412.7 Aircraft Manufacturing Exit Access Travel Distance

Height (feet) ^b	Manufacturing Area (sq. ft.) ^a					
	≥150,000	≥200,000	≥250,000	≥500,000	≥750,000	≥1,000,000
≥25	400	450	500	500	500	500
≥50	400	500	600	700	700	700
≥75	400	500	700	850	1,000	1,000
≥100	400	500	750	1,000	1,250	1,500

For SI: 1 foot = 304.8 mm
a. Contiguous floor area of the aircraft manufacturing facility having the indicated height.
b. Minimum height from finished floor to bottom of ceiling or roof slab or deck.

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2012

422 Ambulatory care facilities

Ambulatory care facility (ACF)

Separate tenant space

Minimum of two smoke compartments where ACF exceeds 10,000 sf

Ambulatory care facility

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2015

Storm shelters serving critical emergency operations facilities and Group E occupancies

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2015

General building height and area limitations

TABLE 503.504.3^a Allowable Building Heights and Areas in Feet Above Grade Plane

Occupancy Classification	See Footnotes	Type of Construction									
		Type I		Type II		Type III		Type IV	Type V		
		A	B	A	B	A	B	HT	A	B	
A, B, E, F, M, S, U	NS ^b	UL	160	65	55	65	55	65	50	40	
	S	UL	180	85	75	85	75	85	70	60	
H-1, H-2, H-3, H-5	NS ^{c,d}	UL	160	65	55	65	55	65	50	40	
	S	UL	160	65	55	65	55	65	50	40	

Note: UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1

(Only a portion of Table 504.3 is shown above.)

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2015

Building height and number of stories, Building area

TABLE 503.504.4^{a,b} Allowable Building Heights and Areas Number of Stories Above Grade Plane

Occupancy Classification	See Foot-Notes	Type of Construction									
		Type I		Type II		Type III		Type IV	Type V		
		A	B	A	B	A	B	HT	A	B	
A-1	NS	UL	5	3	2	3	2	3	2	1	
	S	UL	6	4	3	4	3	4	3	2	
A-2	NS	UL	11	3	2	3	2	3	2	1	
	S	UL	12	4	3	4	3	4	3	2	
A-3	NS	UL	11	3	2	3	2	3	2	1	
	S	UL	12	4	3	4	3	4	3	2	

Note: UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1

(Only a portion of Table 504.4 is shown above.)

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2015

Table 506.2

TABLE 503 506.2^{a,b} Allowable Building Heights and Areas Factor (A_f = NS, S1, S13R or SM, as applicable) in Square Feet

Occupancy Classification	See Footnotes	Type of Construction									
		Type I		Type II		Type III		Type IV	Type V		
		A	B	A	B	A	B	HT	A	B	
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500	
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000	
	SM	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500	
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000	
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000	
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000	
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000	
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000	
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000	

(Only a portion of Table 506.2 is shown above.)

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Mezzanine – Means of egress and Openness

2012 IBC	2015 IBC
505.2.2	505.2.3
The specific provisions for mezzanine means of egress have been deleted and replaced with a general reference to Chapter 10.	Direct access to at least one exit at the mezzanine level is no longer required for those enclosed mezzanines regulated by Exception 2 of Section 505.2.3.

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Unlimited area buildings – Accessory occupancies; Basements in unlimited area buildings

2012 IBC	2015 IBC
507.1.1 (507.1)	507.1
The allowance for occupancy groups not specifically scoped under the unlimited area building provisions of Section 507 to be located in such buildings under accessory occupancies provisions of Section 508.2 is now contained within the code text.	The allowance of a single-story basement in unlimited area buildings have now been clarified.

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Unlimited area buildings – Group H occupancies; Group H-5 in unlimited area buildings

2012 IBC	2015 IBC
507.8	507.9
The limitations placed on Group H occupancies permitted in unlimited area building have been clarified and reformatted to aid in their consistent application.	Group H-5 buildings are now permitted to be unlimited in area under the special provisions of Section 507.

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Incidental uses – General provisions; Separation and Protection; Rooms or areas; Fire protection from incidental uses

2012 IBC	2015 IBC
509.1	509.4
The concept of incidental uses has been clarified by eliminating the previous relationship with the mixed-occupancy provisions.	An automatic sprinkler system is now the only fire-extinguishing system specifically permitted as a means of providing any fire protection required for incidental use rooms and area.



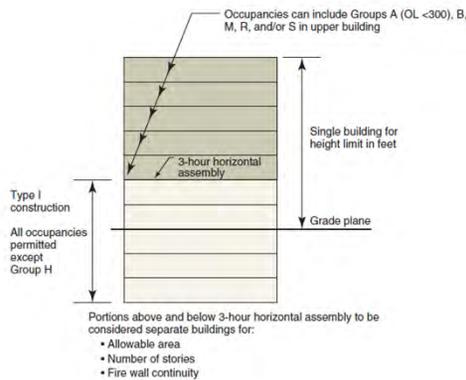
INCIDENTAL USES SPECIFIC TO AMBULATORY CARE FACILITIES		
Room or Area	2015 IBC	2012 IBC
Laboratories not classified as Group H occupancies	1-hour separation or provide automatic sprinkler system	Not considered as an incidental use
Waste and linen collection rooms	1-hour separation for rooms where containers have an aggregate volume of 10 cubic feet or more	1-hour regardless of amount of collection
Storage rooms more than 100 square feet in floor area	1-hour separation	Not considered as an incidental use

INCIDENTAL USES SPECIFIC TO GROUP I-2 OCCUPANCIES		
Room or Area	2015 IBC	2012 IBC
Laboratories not classified as Group H occupancies	1-hour separation <i>and</i> provide automatic sprinkler system	1-hour separation or provide automatic sprinkler system
Laundry rooms	1-hour separation where more than 100 square feet in floor area	1-hour separation or provide automatic sprinkler system where more than 100 square feet in floor area
Patient rooms equipped with padded surfaces	1-hour separation	Not considered as an incidental use
Physical plant maintenance shops	1-hour separation	Not considered as an incidental use
Waste and linen collection rooms	1-hour for rooms where containers have an aggregate volume of 10 cubic feet or more	1-hour regardless of amount of collection
Storage rooms more than 100 square feet in floor area	1-hour separation	Not considered as an incidental use



510.2 Horizontal building separation

2015



Part 3 Fire Protection (Chapters 7-9)

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703.7 Identification of fire and smoke separation walls

2012

Minimum 3 in. high with 3/8" stroke lettering

Sign or stenciling at maximum 30-ft. intervals and within 15 ft. of end of wall

Concealed space

Floor or roof deck

Fire barrier
Protect all openings

Ceiling

Floor

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705.2 Projections at exterior walls

2015

TABLE 705.2 Minimum Distance of Projection

Fire Separation Distance (FSD)	Minimum Distance from Line Used to Determine FSD
0 feet to less than 2 feet	Projections not permitted
Greater than 2 feet to less than 5 feet 3 feet	24 inches
5 feet or Greater than 3 feet to less than 30 feet	40 inches 24 inches plus 8 inches for every foot of FSD beyond 3 feet or fraction thereof
30 feet or greater	20 feet

For SI: 1 foot = 304.8 mm; 1 inch = 25.4 mm.

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705.2.3 Combustible projections

2015

Combustible projection to be:

- Minimum 1-hour construction, or
- Type IV Heavy Timber construction, or
- Fire-retardant-treated wood, or
- As required by Section 1406.3

5 ft.

Lot line

Combustible projections

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705.3 Buildings on the same lot

2015

S-2 of Type I or IIA construction

R-2

Parking garage

Exterior walls of buildings with no fire separation distance between them.

Opening protectives required in exterior wall of garage 1 1/2-hour rating

No opening protection required in exterior wall of R-2

Exception allows: Exterior wall of adjacent buildings with no fire separation distance between them*

*Generally, would require a fire wall or exterior walls with no openings.

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705.6 Structural element bracing of exterior walls 2015

Per Table 601

- Primary structural frame
- Floor construction (and secondary members)
- Roof construction (and secondary members)

can have 1-hour rating even though they brace the exterior wall

<5 ft.

PL

2-hour exterior wall—per Table 602

Example: Group M occupancy Type VA construction

Interior structural elements bracing exterior wall

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706.2 Structural stability of fire walls

2012 IBC	2015 IBC
706.2	706.2
To satisfy the intended objective of structural stability the use of a double fire wall complying with NFPA 221 is permitted as an alternative to a single fire wall.	The reference to NFPA 221 for fire wall design and construction has been expanded to permit the use of the “tied” and “cantilevered” options addressed in the standard.

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707.8, 707.9 Intersections of fire barriers at roof assemblies 2012

- The void at the intersection between a fire barrier and a nonfire-resistance rated roof assembly now need only to be protected with an approved material rather than a fire-resistant joint system.

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Horizontal assemblies and vertical openings

2012 IBC	2015 IBC
712	711, 7012
Significant reformatting in Chapter 7 now places emphasis on the presence of vertical openings rather than on shaft enclosures, recognizing the use of shaft enclosures is just one of many acceptable protective measures that can be utilized to address the hazards related to vertical openings.	The reorganization of Section 711 and 712 has been continued such that Section 711 now contains only the construction requirements for floor and roof assemblies, and Section 712 only contains the requirements related to the protection of vertical openings.

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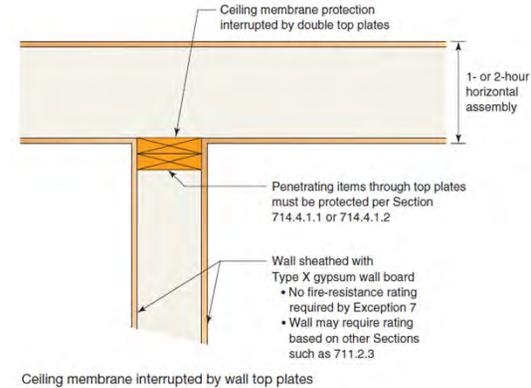
714.4.1.2 (714.4.1.1.2-2009) 2012

Exception 2, Floor penetration of horizontal assembly

- An approved through-penetration fire-stop system used to protect floor penetrations of horizontal assemblies due to the presence of floor, tub, & shower drains is no longer required to have a T rating.



714.4.2 Membrane penetration 2015



714.4.4 (714.5-2009), 715.6, 202, L ratings 2012

- An “L” rating identifying the air leakage rate - as defined in Chapter 2 – is now mandated for penetration firestop systems and fire-resistant joint systems that are utilized in smoke barrier construction.



TABLE 715.4 716.5 Fire Door and Fire Shutter Fire-Protection Ratings
Opening Fire-Protection Assemblies, Ratings, and Markings

Type of Assembly	Required Wall Assembly Rating (Hours)	Minimum Fire Door and Fire Shutter Assembly Rating (Hours)	Fire-Rated Door Vision Panel Size	Fire-Rated Glazing Marking Door Vision Panel ¹	Minimum Sidelight/Transom Assembly Rating (Hours)		Fire-Rated Glazing Marking Sidelight/Transom Panel	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	Not Permitted	Not Permitted	Not Permitted	4	Not Permitted	W-240
	3	3 ^d	Not Permitted	Not Permitted	Not Permitted	3	Not Permitted	W-180
	2	1½	100 sq. in. ² ≤ 100 in. ² = D-H-90	Not Permitted	Not Permitted	2	Not Permitted	W-120
	1½	1½	100 sq. in. ² > 100 in. ² = D-H-W-90	Not Permitted	1½	Not Permitted	W-90	
			100 sq. in. ² ≤ 100 in. ² = D-H-90	Not Permitted	Not Permitted	Not Permitted	W-120	
Shaft, exit enclosures, and exit passageway walls	2	1½	100 in. ² ≤ 100 in. ² = D-H-T-or D-H-T-W-90	Not Permitted	2	Not Permitted	W-120	

continued



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Table 716.5 continued

Type of Assembly	Required Wall Assembly Rating (Hours)	Minimum Fire Door and Fire Shutter Assembly Rating (Hours)	Door Vision Panel Size	Fire-Rated Glazing Marking Door Vision Panel ^a	Minimum Sidelight/Transom Assembly Rating (Hours)		Fire-Rated Glazing Marking Sidelight/Transom Panel	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts, exit access stairways, exit access ramps, interior exit stairways, interior exit ramps, and exit passageway walls	1	1	100 in. ^{2 c,d}	≤100 in. ² = D-H-60 >100 in. ² = D-H-T-60 or D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
Other fire barriers	1	¾	Maximum size tested	D-H-NT-45	¾			D-H-NT-45
Fire partitions	1	¾ ^b	Maximum size tested	D-20	¾ ^b			D-H-OH-45
Corridor walls	0.5	¾ ^b	Maximum size tested	D-20	¾			D-H-OH-20

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Other fire partitions	1	¾	Maximum size tested	D-H-45	¾			D-H-45
	0.5	¾	Maximum size tested	D-H-20	¾			D-H-20
Exterior walls	3	1½	100 in. ^{2 c}	≤100 in. ² = D-H-90 >100 in. ² = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	1½	100 in. ^{2 c}	≤100 in. ² = D-H-90 >100 in. ² = D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1	¾	Maximum size tested	D-H-45	¾			D-H-45
Smoke barriers	1	¾ ^b	Maximum size tested	D-20	¾			D-H-OH-45

a. Two doors, each with a fire protection rating of 1-½ hours. Installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.
 b. For testing requirements, see Section 716.6.3.
 c. Fire-resistance-rated glazing tested to ASTM E 119 per Section 716.2 shall be permitted, in the maximum size tested.
 d. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.
 e. Under the column heading "Fire-Rated Glazing Marking Door Vision Panel," W refers to the fire-resistance rating of the glazing, not the frame.

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2012 Fire-protection-rated glazing

Table 716.6

- In addition to fire window assembly fire protection ratings, Table 716.6 now identifies the markings required on the fire-rated glazing for acceptance in specified applications.

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2012 716.6.4 (715.5.4 and 715.5.5 in 2009) Wired glass in fire window assemblies

Wired glass used in a fire window assembly

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717.3, 717.5 Corridor dampers

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903.2.1.6 Sprinkler systems – Assembly occupancies on roofs

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903.2.1.7 Multiple fire areas

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903.2.8 Sprinklers systems – Group R occupancies

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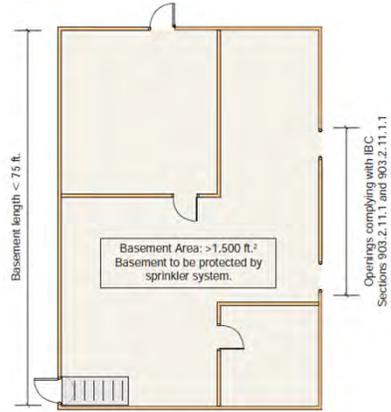
**903.2.4,
903.2.7,
903.2.9
Furniture
storage and
display
in Group F-1, M
and S-1
occupancies**



2012

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**903.2.11.1.3
Sprinkler
protection
for
basements**



2012

Sprinkler requirements for basements

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903.3.1.2.2 Open-ended corridors



2015

Open-ended corridors are permitted, provided:

- Building is sprinklered throughout (NFPA 13 or 13R system)
- Specific provision in Section 903.3.1.2.2 requires that sprinklers must be provided in the open-ended corridors and associated exterior stairway. (Overrides general NFPA 13R exemption for these areas.)

Sprinklers required in an open-ended corridor

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**904.3.2 Actuation of multiple
fire-extinguishing
systems**



2012

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2012

**906.1
Portable fire extinguishers in Group R-2 occupancies**



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2012

907.2.1 Fire alarm systems in Group A occupancies



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2012

**907.2.1.2
Emergency voice/alarm communication captions**




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2015

907.2.3 Group E fire alarms

Group E Alarm Requirements

Occupant load	Type of system required
≤50	No Requirement (907.2.3 Exception 1)
51–100 ^a	Manual Fire Alarm System (907.2.3 Exception 2) <ul style="list-style-type: none"> • Activates occupant notification system complying with Section 907.5
>100 ^a	Emergency voice/alarm communication (EVAC) system (907.2.3) <ul style="list-style-type: none"> • See Section 907.5.2.2 for special occupant notification requirements

^a Manual fire alarm boxes may be eliminated at specific locations and under specific conditions. (See Section 907.2.3 Exceptions 3 and 4.)

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Smoke detection and alarm systems in Group R-2 college buildings

2012 IBC	2015 IBC
907.2.9.3	907.2.3
A smoke detection system, tied into the occupant notification system, is now required in certain public and common spaces of Group R-2 college and university buildings, and the required smoke alarms within individual dwelling and sleeping units must be interconnected with the building's fire alarm and detection system.	The scope of the fire alarm provisions for Group R-2 college and university buildings has been revised to apply to facilities "operated by" the college or university whether owned by the school or not.

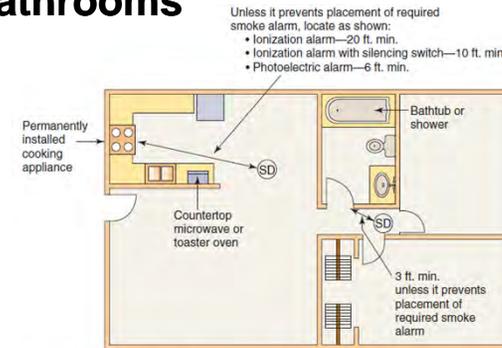


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907.2.11.3, 903.2.11.4 Smoke alarms near cooking appliances and bathrooms

2015



Location of smoke detector



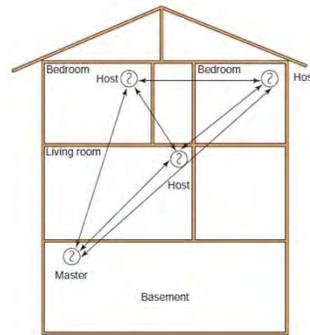
2015 IBC Transition from the 2009 IBC

70

907.2.11.5 (907.2.11.3-2009) Wireless interconnection of smoke alarms

2012

- The smoke alarm interconnection requirements are now applicable to Group I-1 occupancies and include allowances for use of wireless alarms.



Smoke alarm

Smoke alarm location and interconnection

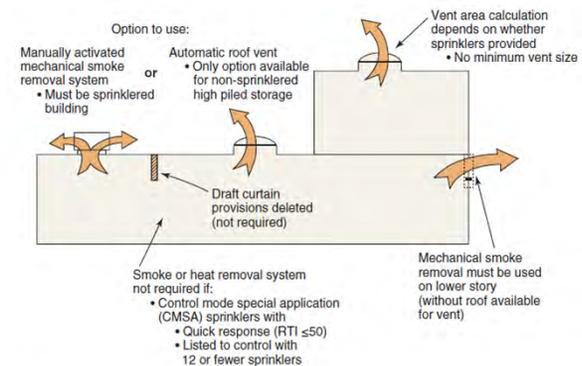


2015 IBC Transition from the 2009 IBC

71

910 Smoke and heat removal

2015



Smoke and heat removal



2015 IBC Transition from the 2009 IBC

72

2015 IBC Transition from the 2009 IBC

Carbon monoxide alarms

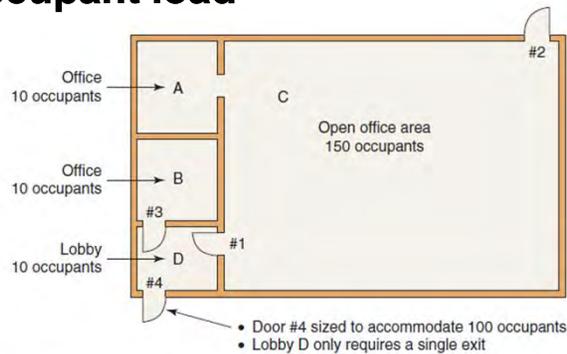
2012 IBC	2015 IBC
915 (908.7-2009)	915
In new and existing buildings, carbon monoxide (CO) alarms are now required in Group R and I occupancies with fuel-burning appliances or attached garages.	The carbon monoxide (CO) alarm provisions have been relocated, reformatted and revised; the scope has been modified to exclude Group I-3 occupancies while adding Group E occupancies.



Part 4
**Means of Egress
(Chapter 10)**

1004.1.1 Cumulative occupant load

2015



Cumulative occupant loads for intervening spaces

1004.1.2, Table 1004.1.2 Design occupant load – Areas without fixed seating

2012

TABLE 1004.1.2 1004.1.2 Maximum Floor Area Allowances per Occupant

Function of Space	Occupant Load Factor ^a Floor Area In Sq. Ft. Per Occupant
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Mall buildings—covered and open	See Section 402.4.1

For SI: 1 square foot = 0.0929 m².

a. Floor area in square feet per occupant.

Note: (no changes to remainder of table)



2015 IBC Transition from the 2009 IBC

2015

Table 1004.1.2 Occupant load

TABLE 1004.1.2 Maximum Floor Area Allowances per Occupant

Function of Space	Occupant Load Factor ^a
Mercantile	60 gross
Areas on other floors	60 gross
Basement and grade floor areas	30 gross
Storage, stock, shipping areas	300 gross

For SI: 1 square foot = 0.0929 m².
 a. Floor area in square feet per occupant.
 (Remaining portions of table not shown are unchanged.)



2015 IBC Transition from the 2009 IBC 77

2012

1005 Means of egress capacity determination



Example: Assuming exit is serving 200 people

Component	Min width based on component (1005.2)	Min width based on occupant load (1005.3)	
		General ¹	Sprinklered building with EV/ACS ²
Corridor 'A'	44"	40"	30"
Door 'B'	32"	40"	30"
Stairway 'C'	44"	60"	40"
Door 'D'	32"	40"	30"

1. Building without sprinkler system or EV/ACS; (also includes Group H and I-2 occupancies)
 2. Other than Group H and I-2 occupancies

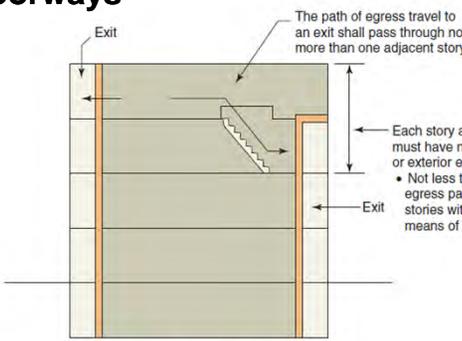
Means of egress sizing



2015 IBC Transition from the 2009 IBC 78

2015

1006, 1007 Means of egress, Numbers of exits and exit access doorways



The path of egress travel to an exit shall pass through no more than one adjacent story

Each story above the second story must have not less than one interior or exterior exit stair or ramp.

• Not less than 50% of required egress paths must be "exits" for stories with 3 or 4 required means of egress.

Exit

Exit

Number and configuration of means of egress



2015 IBC Transition from the 2009 IBC 79

2015

Exits from dwelling units

2012 IBC	2015 IBC
915 (908.7-2009)	915
In new and existing buildings, carbon monoxide (CO) alarms are now required in Group R and I occupancies with fuel-burning appliances or attached garages.	The carbon monoxide (CO) alarm provisions have been relocated, reformatted and revised; the scope has been modified to exclude Group I-3 occupancies while adding Group E occupancies.



2015 IBC Transition from the 2009 IBC 80

2015 IBC Transition from the 2009 IBC

Spaces with one exit or exit access doorway

TABLE 1006.2.1 Spaces with One Exit or Exit Access Doorway

Occupancy	Maximum Occupant Load of Space	Maximum Common Path of Egress Travel Distance (feet)	
		Without Sprinkler System (feet)	
		Occupant Load ≤ 30	Occupant Load > 30
A, E, M	49	75	75 ^a
B	49	100	75 ^a
F	49	75	100 ^a
H-1, H-2, H-3	3	NP	NP
H-4, H-5	10	NP	NP
I-1, I-2 ^b , I-4	10	NP	NP
I-3	10	NP+00	NP+00
R-1	10	NP75	NP75
R-2	10	NP75	NP75
R-3 ^c	10	NP75	NP75
R-4 ^d	10	75	75
S ^e	29	100	75
U	49	100	75

For SI, 1 foot = 304.8 mm.
 NP = Not Permitted.
 a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
 b. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.
 c. For a room or space used for assembly purposes having fixed seating, see Section 903.2.5.
 d. For the travel distance limitations in Group I-2, see Section 407.4.
 e. The length of common path of egress travel distance in a Group R-3 occupancy located in a mixed occupancy building or within a Group R-3 or R-4 congregate living facility.
 f. The length of common path of egress travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

2015 IBC Transition from the 2009 IBC 81

1007.1 Exit and exit access doorway configuration

Required separation distance measured to closest riser

Required separation shall be maintained for all portions of:

- Exit access stairway
- Exit access ramp

2015 IBC Transition from the 2009 IBC 82

1010.1.9 Door operations – Locking systems

Interior or exterior main door or doors permitted to have key-operated locking device

- Group A with ≤ 300 occupants
- Group B, F, M, or S
- Places of religious worship

Visible sign stating "This door to remain unlocked when this space is occupied"

Key-locking hardware permitted on interior doors

2015 IBC Transition from the 2009 IBC 83

1009.1 Changed to 1011.1 in the 2015 IBC

Application of stairway provisions

2015 IBC Transition from the 2009 IBC 84

2015 IBC Transition from the 2009 IBC

2012

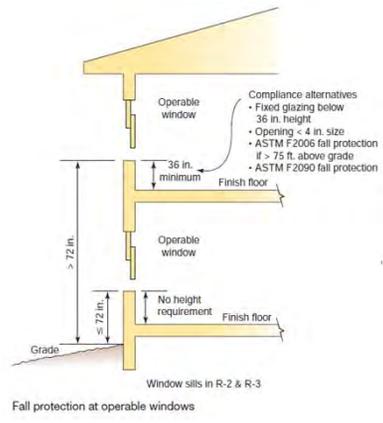
1013.2 (1011.2-2012) Floor level exit signs in Group R-1



2012

2015 IBC Transition from the 2009 IBC 85

1015.1 (1013.1, 1013.8-2012) Guards at operable windows

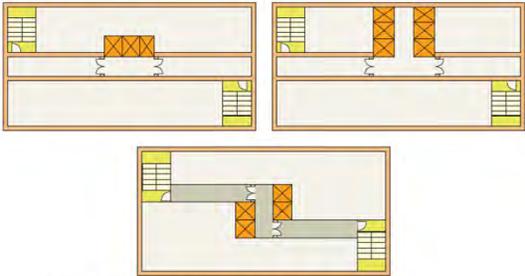


2012

2015 IBC Transition from the 2009 IBC 86

1016.2 Egress through intervening spaces

2015



Exit access is permitted through an enclosed elevator lobby provided:

- Access to at least one exit shall be provided without travel through the lobby.
- Protection required for lobby is not required to extend to exit unless access to the exit is required by other sections (e.g., fire service access elevator lobby requires direct access to an exit stairway per Section 3007.6.1).

Egress through elevator lobby

2015 IBC Transition from the 2009 IBC 87

1017.2.2 Travel distance increase for Groups F-1 and S-1

2015

Exit access travel distance for F-1 or S-1 occupancy

General requirement:

- Without sprinkler system: 200 feet
- With sprinkler system: 250 feet
- Allowed by Section 1017.2.2 where:
 - Area using increase is limited to single story in height, and
 - Minimum height to ceiling or roof is 24 feet, and
 - Building is sprinklered throughout

Travel distance allowed for F-1 or S-1 occupancy

2015 IBC Transition from the 2009 IBC 88

2015 IBC Transition from the 2009 IBC

2015

1018.3 Aisles in Groups B and M

Full height walls

Corridor

Aisle

Group B or M occupancy example: Open office area with low height partitions or other elements creating an aisle

Width of corridor and aisle

- Based on occupant load served per Section 1005.1 but
- Not less than required for corridors by Section 1020.2

Minimum aisle widths in Group B and M occupancies

2015 IBC Transition from the 2009 IBC 89

2015

1019 (1009, 1010-2009) Exit access stairways and ramps

Office suite 4
OL = 300

Office suite 1
OL = 80

Office suite 3
OL = 80

Office suite 2
OL = 80

2015 IBC Transition from the 2009 IBC 90

2012

1023.5 (1022.5-2012) Enclosure penetrations of interior exit stairways

Light switch or fire alarm pull station

Light fixture

Plumbing penetrations

Electrical outlet box

Exit stairway

Penetrations generally prohibited into stairway - See 1022.5 for specific permitted items

New exception allows protected membrane penetrations on the outside

Membrane penetrations of interior exit stairways

2015 IBC Transition from the 2009 IBC 91

2012

1029.1.1.1 (1028.1.1.1-2012) Separation of spaces under grandstands and bleachers

Grandstand or bleacher

One-hour minimum

Space used for any purpose other than:

- Ticket booths <100 sq ft
- Toilet rooms

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Spaces under grandstands and bleachers

2015 IBC Transition from the 2009 IBC 92

2015 IBC Transition from the 2009 IBC

1029.13.2.2.1 Stepped aisle construction tolerances 2015

Stepped aisle

Nonuniform riser height designed to maintain sightline (per Section 1029.13.2.2 Exception 1)

Designed equal riser height

Construction tolerance:

- 3/8 in. max. between adjacent risers if treads are less than 22 in. depth
- 3/4 in. max. between adjacent risers if treads are 22 in. or more in depth

Construction tolerance: • 3/8 in. max. between adjacent risers

Limitations on riser height variations

2015 IBC Transition from the 2009 IBC 93

Part 5 Accessibility (Chapter 11)

2015 IBC Transition from the 2009 IBC 94

1103.2.8 Areas in places of religious worship 2015

- Small areas used for religious ceremonies are now exempt from the access requirements.

2015 IBC Transition from the 2009 IBC 95

1104.3.1 Employee work areas 2012

Employee work area < 1,000 sq. ft.

Permanent partitions, counters, casework, or furnishings define path

Common use circulation path not required to be accessible route

Accessible route for common use circulation path

2015 IBC Transition from the 2009 IBC 96

2015 IBC Transition from the 2009 IBC

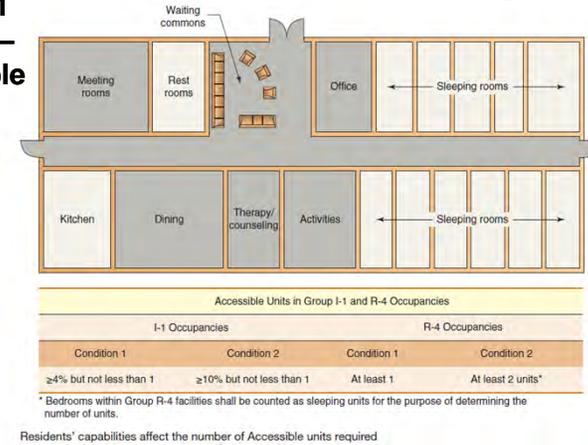
Multistory buildings and facilities, Accessible spaces and routes

2012 IBC	2015 IBC
915 (908.7-2009)	915
In new and existing buildings, carbon monoxide (CO) alarms are now required in Group R and I occupancies with fuel-burning appliances or attached garages.	The carbon monoxide (CO) alarm provisions have been relocated, reformatted and revised; the scope has been modified to exclude Group I-3 occupancies while adding Group E occupancies.



1107.6.1.1 Group R – Accessible units

2015



1108.2.7.3 Captioning of public address announcements

2012



1109.2, 1109.5 Accessible children's facilities

2012



2015 IBC Transition from the 2009 IBC

1110 Recreational facilities 2015



2015 IBC Transition from the 2009 IBC 101

Part 6 Building Envelope, Structural Systems, and Construction Materials (Chapters 12-26)

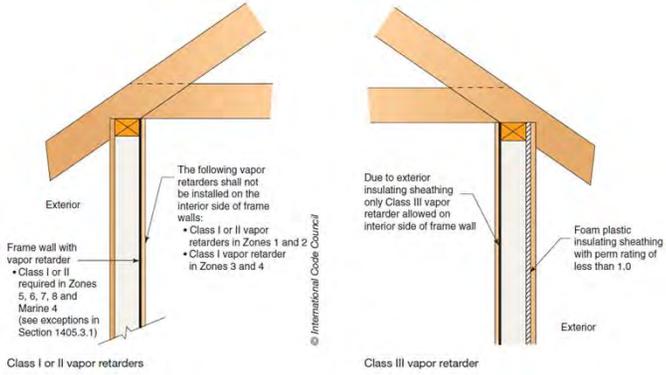
102

1210 Toilet and bathroom requirements 2012



2015 IBC Transition from the 2009 IBC 103

1405.3 Vapor retarders 2015



The following vapor retarders shall not be installed on the interior side of frame walls:

- Class I or II vapor retarders in Zones 1 and 2
- Class I vapor retarder in Zones 3 and 4

Due to exterior insulating sheathing only Class III vapor retarder allowed on interior side of frame wall

Foam plastic insulating sheathing with perm rating of less than 1.0

Exterior

Frame wall with vapor retarder

- Class I or II required in Zones 5, 6, 7, 8 and Marine 4 (see exceptions in Section 1405.3.1)

Class I or II vapor retarders

Class III vapor retarder

Exterior

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2015 IBC Transition from the 2009 IBC 104

2015 IBC Transition from the 2009 IBC

1507.16 Roof gardens and landscaped roofs, Roof loads 2012



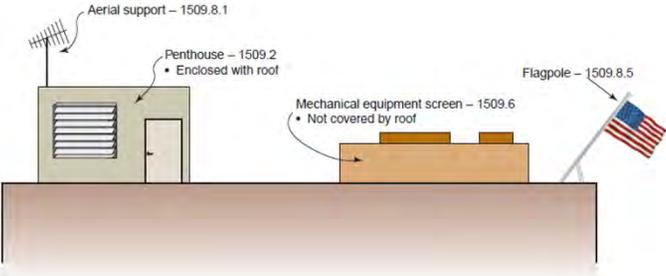
2015 IBC Transition from the 2009 IBC 105

1507.17, 3111, 202 Photovoltaic systems 2012



2015 IBC Transition from the 2009 IBC 106

1510 (1509, 202-2012), Rooftop structures 2012



2015 IBC Transition from the 2009 IBC 107

Construction documents, Special loads 2015



2015 IBC Transition from the 2009 IBC 108

2015 IBC Transition from the 2009 IBC

Risk category

2012 IBC	2015 IBC
1604.5	1604.5
The term "Occupancy category" has been changed to "risk category" to better reflect the intended meaning and to coordinate with the terminology used in ASCE 7-10.	In the application of assigning the appropriate risk category for a structure, Section 1604.5 has been revised to clarify that where standards referred to ASCE 7 Table 1.5-1, IBC Table 1604.5 should be used instead. In addition, descriptions for Risk Category III structures have been revised to include occupancy classifications to help clarify the intent.



2015 IBC Transition from the 2009 IBC

109

1607.1 Minimum Live loads

2012

2012 CODE:

TABLE 1607.1 Minimum Uniformly Distributed Live Loads, L_u , and Minimum Concentrated Live Loads^a

Occupancy or Use	Uniform (psf)	Concentrated (lb)
3. Armories and drill rooms	150 ^b	—
4. Assembly areas and theaters		
Fixed seats (fastened to floor)	60 ^{b,c}	—
Follow spot, projections, and control rooms	50	—
Lobbies	100 ^b	—
Movable seats	100 ^b	—
Stages and floors	125-150 ^b	—
Platforms (assembly)	125-100	—
Other assembly areas	100 ^b	—
5. Balconies (exterior) and docks ^b	Same as occupancy served	—
6. Bowling alleys	75	—
7. 6. Catwalks	40	300
9. 9. Corridors, except as otherwise indicated		
First floor	100	—
Other floors	Same as occupancy served, except as indicated	—
10- Dance halls and ballrooms	100	—
11- Dining rooms and restaurants	100 ^b	—
11- 11. Elevator machine room grating (on area of 4 in ² 2 inches by 2 inches)	—	300
11- 12. Finish light floor plate construction (on area of 4 in ² 1 inch by 1 inch)	—	200
14- 14. Cargoes (passenger vehicles only) Tracks and buses	40 ^b	Note a

See Section 1607.7
Table 1607.1 continues



2015 IBC Transition from the 2009 IBC

110

Photovoltaic panel systems, Ballasted photovoltaic panel systems

2015

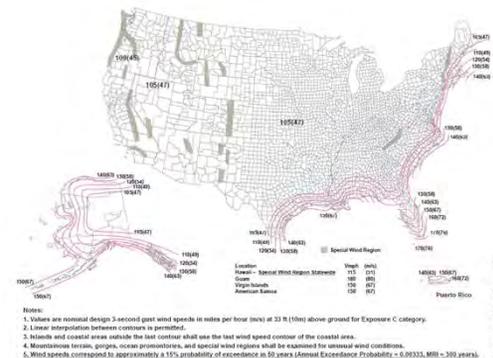


2015 IBC Transition from the 2009 IBC

111

1609, 202 Determination of wind loads

2012



2015 IBC Transition from the 2009 IBC

112

2015 IBC Transition from the 2009 IBC

Mapped acceleration parameters

2012 IBC	2015 IBC
1613.3.1, 202	1613.3.1
The IBC seismic ground motion maps have been updated to reflect the 2008 maps developed by the United States Geological Survey (USGS) National Seismic Hazard Mapping Project and the technical changes adopted for the 2009 NEHRP Recommended Seismic Provisions for New Buildings and Other Structures (FEMA P750).	The U.S. Geological Survey (USGS) recently developed seismic hazard and Risk-Targeted Maximum Considered Earthquake (MCER) ground motion maps for Guam and American Samoa, which have now been included in the IBC.



1704.3 Statement of special inspections

2012

- The provisions requiring specific items to have special inspection and what information is required to be included in the statement of special inspections have been clarified and coordinated, with previous conflicts between the two being resolved.



1704.5 Submittals to the building official

2015



Special inspections

2015

2012 IBC	2015 IBC
1705	1705
Special inspection requirements for structural steel have been deleted from Chapter 17 because the new standard for structural steel buildings (ANSI/AISC 360-10) includes quality assurance provisions.	Steel construction provisions modified to use new terminology that coordinates with Chapter 22 and AISC 360 standard. A new SDI standard addresses inspection of cold-formed steel floor and roof decks (SDI QA/QC) (Section 1705.2)



2015 IBC Transition from the 2009 IBC

1705.17 (1705.16) Special inspections 2012




2015 IBC Transition from the 2009 IBC 117

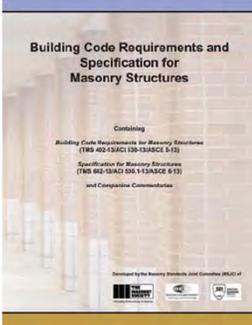
Structural items moved from code to standards 2015

2012 IBC	2015 IBC
Chapter 19	1901.3
Numerous provisions related to concrete construction were deleted from Chapter 19 because they are contained in the 2011 edition of ACI 318. Building Code Requirements for Structural Concrete and Commentary. (e.g. IBC Sections 1905, 1906, and 1907 were deleted because they only provided referencing to the corresponding sections in the ACI 318 standard.)	Anchoring to concrete Sections 1908 and 1909 of the 2012 IBC, which contain the requirements for anchorage to concrete, have been deleted because they are obsolete and not consistent with current referenced standards. In their place, no provisions on anchoring to concrete have been added to the general provisions found in Section 1901.



2015 IBC Transition from the 2009 IBC 118

Structural items moved from code to standards 2015



- 2101.2 Masonry Design Methods
- 2103 Masonry Construction Materials
- 2104 Masonry Construction
- 2105 Quality Assurance



2015 IBC Transition from the 2009 IBC 119

2308 Conventional light-frame construction 2015

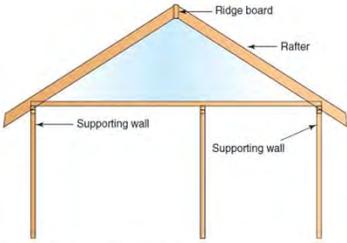



2015 IBC Transition from the 2009 IBC 120

2015 IBC Transition from the 2009 IBC

2308.7 Roof and ceiling framing 2015

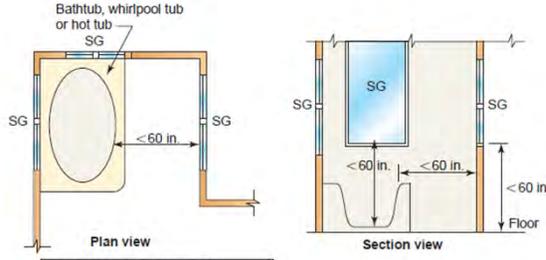
- Ceiling joist and rafter span tables from the IRC have been incorporated into the conventional construction provisions of the IBC.



Typical rafter and ceiling joist framing

2015 IBC Transition from the 2009 IBC 121

2406.1, 2406.4 Safety glazing – hazardous locations 2012



Plan view

Section view

SG = Safety glazing required
Measurements are to exposed glazing

Hazardous locations near wet surfaces

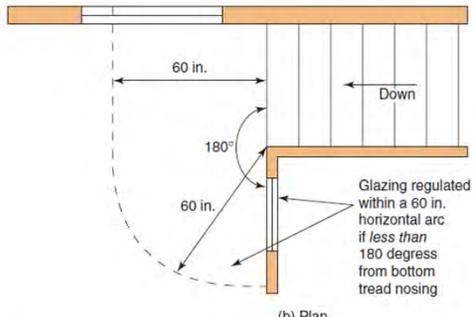
2015 IBC Transition from the 2009 IBC 122

2406.2 Safety glazing – impact test 2012

- The default impact test criteria have been revised to impose the more restrictive test methodology. The higher impact requirements will apply unless the tables in Section 2406.2 allow for a lower impact test to be used.

2015 IBC Transition from the 2009 IBC 123

2406.4.7 Safety glazing adjacent to bottom stair landing 2015



(b) Plan

Requirement for safety glazing adjacent to bottom stairway landing

2015 IBC Transition from the 2009 IBC 124

2015 IBC Transition from the 2009 IBC

2510.6 Water-resistive barriers for stucco applications 2012

Two-Layer System

- Each layer of water-resistive barrier is individually installed in a ship lapped fashion
- Interior layer forms continuous drainage plane and integrated with flashing

Two-Ply System

- Both layers of water-resistive barrier installed and lapped together
- Exterior layer integrated with flashing

Installation of water-resistive barrier

2015 IBC Transition from the 2009 IBC 125

2603.4.1.14 Foam plastic insulation installed in floor assemblies 2012

Requirements for floors with foam plastic insulation

2015 IBC Transition from the 2009 IBC 126

2603.9 (2603.10, 2603.10.1) Special approval of foam plastics 2012

Foam plastic used as interior finish

Conform to Chapter 8 requirements for:

- Flame spread
- Smoke developed

Special approval testing

2015 IBC Transition from the 2009 IBC 127

2612 Plastic composites 2015

2015 IBC Transition from the 2009 IBC

Part 7
**Building Services, Special
Devices, and Special
Conditions (Chapters 27-34)**

129

2902.2 Single-user toilet facilities ²⁰¹²



2015 IBC Transition from the 2009 IBC

130

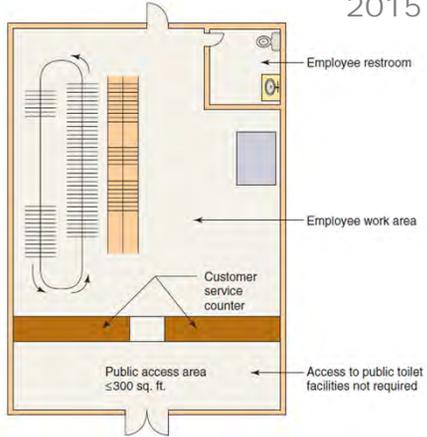
**2902.3 Toilet facilities in
parking garages** ²⁰¹²



2015 IBC Transition from the 2009 IBC

131

**2902.3
Public
toilet
facilities** ²⁰¹⁵



Employee restroom

Employee work area

Customer service counter

Public access area ≤300 sq. ft.

Access to public toilet facilities not required

Toilet facilities for the public are not required

2015 IBC Transition from the 2009 IBC

132

2015 IBC Transition from the 2009 IBC

3004 Elevator hoistway venting 2015

Hoistway venting is not required

2015 IBC Transition from the 2009 IBC 133

3006 Elevator lobbies and hoistway opening protection 2015

Protection of hoistway door opening required. (See exceptions.)

Options to protect include:

- Enclosed elevator lobbies
- Additional door
- Hoistway pressurization

Hoistway door opening protection is not required in high-rise if elevator travels 75 ft. or less - 2012 limited to floors 75 ft. or less above fire department vehicle access

The elevator lobby provisions have been relocated to Chapter 30

2015 IBC Transition from the 2009 IBC 134

3007 Fire service access elevators, 2012

3008 Occupant evacuation elevators

Interior exit stairway containing the standpipe shall have access to the floor without passing through elevator lobby

Standpipe

Symbol designating elevators are fire service access elevators shall be provided

Fire service access elevator

2015 IBC Transition from the 2009 IBC 135

Chapter 34 Existing structures 2015

- Chapter 34 has been deleted from the IBC in its entirety, and existing buildings will now be solely regulated by the International Existing Building Code (IEBC).

2015 IBC Transition from the 2009 IBC 136

2015 IBC Transition from the 2009 IBC

Type B units in existing buildings

2012



2015 IBC Transition from the 2009 IBC 137

FINAL REFLECTION

Final Reflection

- This slide will help the learner to reflect on the day and what they will take back to the job and apply.
- What? What happened and what was observed in the training?
- So what? What did you learn? What difference did this training make?
- Now what? How will you do things differently back on the job as a result of this training?

2015 IBC Transition from the 2009 IBC 138

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2015 IBC Transition from the 2009 IBC 139

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2015 IBC Transition from the 2009 IBC 140

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