



Major Changes to the 2019 California Building Code

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Learning Objectives

1. Identify significant changes made in the basic 2018 IBC and IRC that are included in the 2019 CBC.
2. Identify California-specific changes to the 2018 IBC and IRC in the 2019 CBC and CRC.
3. Identify the changes made to the 2016 codes by interim changes that will be carried forward in the 2019 CBC and CRC.
4. Learn to recognize the impact of the noted changes on practice.

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Publication of the 2019 CBC

The new 2019 editions of all the codes in California Code of Regulations Title 24 are now available online for viewing on the Building Standards Commission website at

<https://www.dgs.ca.gov/bsc>

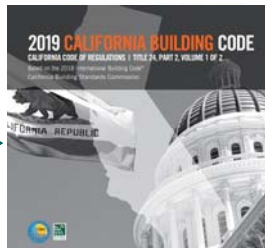
and for purchase from ICC at

<https://www.iccsafe.org/>

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2018 IBC is the Basis for the 2019 CBC



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Finding Changes

CA language (new & old) is in **Italic Type** [as are words with IBC definitions = confusing]

- || Double Vertical Lines = CA Change
- █ Solid Vertical Bar = IBC Change (NA for access Chapters 11A and 11B, which are both CA Chapters)
- > Caret Denotes CA Deletion
- ➡ Arrow Denotes IBC Deletion
- * Single asterisk means text has been relocated elsewhere in the code
- ** Double asterisk means text following mark has been moved there from elsewhere in the code

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Get the pdf

The best way to keep track of code changes, especially rearranged chapters like Chapter 10 is to get the pdf version of the code so you can do key word searches

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Code Update Management

Whether pdf or hard copy be sure to keep up to date

With errata

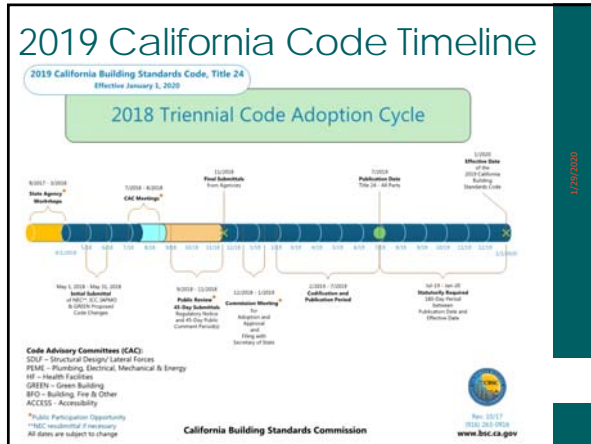
- (buff pages)

➡

With interim cycle and emergency amendments

- (blue pages)

9



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Other California Codes

2019 California Codes are based upon:

- 2017 National Electrical Code – NFPA
- 2018 Uniform Mechanical Code- IAPMO
- 2018 Uniform Plumbing Code – IAPMO
- 2018 International Fire Code – ICC
- 2019 Energy Code – California Energy Commission
- 2019 California Residential Code = Chapters 1-10 of the 2018 International Residential Code
- CALGreen – 2019 California Green Building Standards Code
- 2018 International Existing Building Code – Partial Adoption to replace deleted IBC Chapter 34

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ICC Code Committees

- [A] = Administrative Code Development Committee;
- [BE] = IBC - Means of Egress Code Development Committee;
- [BF] = IBC - Fire Safety Code Development Committee;
- [BG] = IBC- General Code Development Committee;
- [BS] = IBC - Structural Code Development Committee;
- [EI] = International Energy Conservation Code Development Committee (Commercial Energy Committee or Residential Energy Committee, as applicable);
- [EB] = International Existing Building Code Development Committee;
- [FI] = International Fire Code Development Committee;
- [FG] = International Fuel Gas Code Development Committee;
- [ML] = International Mechanical Code Development Committee;
- [PI] = International Plumbing Code Development Committee.

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California State Fire Marshal Amendments

Key to Understanding the California State Fire Marshal's Amendments to the IBC are:

"In high-rise buildings, Group A, E, H, I, L and R occupancies and other applications listed in Section 111 regulated by the Office of the State Fire Marshal,...."

We will label these "SFM Occupancies" for further discussion.

Most SFM changes from 2016 CBC carried forward into 2019 CBC without revision

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107.2.5 Exterior Balconies

Per Section 107.2.5 for weather exposed exterior balconies the construction documents must include all elements of the "impervious moisture barrier system" including manufacturer's installation instructions.

Addresses issues from 6/15 Berkeley balcony collapse that killed 6 people.

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110.3.6 Exterior Balcony Inspections

Per Section 110.3.6 for weather exposed exterior balconies all elements of the "impervious moisture barrier system" are not to be concealed until inspected and approved.

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New Definition –

Commercial place of public amusement. An auditorium, convention center, cultural complex, exhibition hall, permanent amusement park, sports arena, theater or movie house for which the maximum occupancy is 2,500 or more for the facility. Cultural complexes include but are not limited to art galleries, symphony, concert halls, and museums. A commercial place of public amusement does not include any public or private higher education facility or district agricultural associations.

Used in scoping for adult changing rooms in Chapter 11B, discussed later

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Definition Change –

2016 CBC	2019 CBC
[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to individuals who are rendered <i>incapable of self-preservation</i> by the services provided.	[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered <i>incapable of self-preservation</i> by the services provided or staff has accepted responsibility for care recipients already incapable.

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Same Definition

This is used in both 2016 and 2019 definitions of “Ambulatory Care Facilities”, but worth repeating:

[BG] INCAPABLE OF SELF-PRESERVATION. Persons who, because of age, physical limitations, mental limitations, chemical dependency or medical treatment, cannot respond as an individual to an emergency situation.

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Definition Change –

2016 CBC	2019 CBC
COMMON PATH OF EGRESS TRAVEL. That portion of the exit access travel distance measured from the most remote point within a story to that point where the occupants have separate access to two exits or exit access doorways.	[BE] COMMON PATH OF EGRESS TRAVEL. That portion of <i>exit access</i> travel distance measured from the most remote point <u>of each room, area or space</u> to that point where the occupants have separate <u>and distinct</u> access to two <i>exits</i> or <i>exit access</i> doorways.

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New Definition –

[BS] CONVENTIONAL LIGHT-FRAME CONSTRUCTION.
Construction whose primary structural elements are formed by a system of repetitive wood-framing members. See Section 2308 for conventional light frame construction provisions.

Moved into IBC from Residential Code. See Section 2308 for details.

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Definition Change –

2016 CBC	2019 CBC
COMMON PATH OF EGRESS TRAVEL. That portion of the exit access travel distance measured from the most remote point within a story to that point where the occupants have separate access to two exits or exit access doorways.	[BE] COMMON PATH OF EGRESS TRAVEL. That portion of <i>exit access</i> travel distance measured from the most remote point <u>of each room, area or space</u> to that point where the occupants have separate <u>and distinct</u> access to two <i>exits</i> or <i>exit access</i> doorways.

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Definition Change –

2016 CBC	2019 CBC
[A] HISTORIC BUILDINGS. Buildings that are listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate state or local law (see Sections 3409 and 3411.9). <i>[DSA-AC] See "Qualified historical building or property," C.C.R., Title 24, Part 8.</i>	[A] HISTORIC BUILDINGS. Any building or structure that is one or more of the following: <ol style="list-style-type: none">1. Listed or certified as eligible for listing by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.2. Designated as historic under an applicable state or local law.3. Certified as a contributing resource within a National Register, state designated or locally designated historic district. <i>[DSA-AC] See "Qualified historical building or property," C.C.R., Title 24, Part 8.</i>

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Definition Change –

2016 CBC	2019 CBC
VEGETATIVE ROOF. An assembly of interacting components designed to waterproof and normally insulate a building's top surface that includes, by design, vegetation and related landscape elements.	[BS] VEGETATIVE ROOF. An assembly of interacting components designed to waterproof a building's top surface that includes, by design, vegetation and related landscape elements

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Chapter 3 – Occupancy and Use

302.1 Occupancy classification. Occupancy classification is the formal designation of the primary purpose of the building, structure or portion thereof. Structures shall be classified into one or more of the occupancy groups listed in this section based on the nature of the hazards and risks to building occupants generally associated with the intended purpose of the building or structure.... Occupied roofs shall be classified in the **group that the occupancy most nearly resembles, according to the fire safety and relative hazard, and shall comply with Section 503.1.4.**

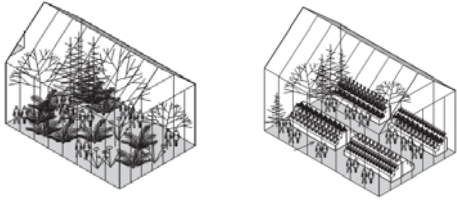
503.1.4 are new provisions for occupied roofs

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Greenhouse Occupancies

Greenhouses for the conservation and exhibition of plants that provide public access are "A-3" Occupancies

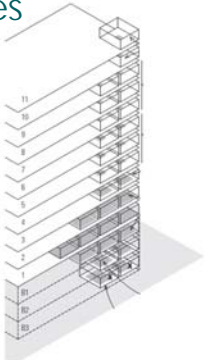
Greenhouses for display and sale of plants that provide public access are "M" occupancies. Greenhouse not otherwise classified are "U" occupancies



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IBC "B" Labs vs. CBC "L" Lab occupancies

Per SFM legislative mandate labs that are typically "B" in the IBC are "L" in the CBC. There are many detailed changes in both the IBC and CBC. Too extensive to cover here in a general discussion. Examine "H" control areas as well



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CBC "Laboratory Suite"

202 LABORATORY SUITE. [SFM] A laboratory suite is a Group L Occupancy space within a building or structure, which may include multiple laboratories, offices, storage, equipment rooms or similar support functions, where the aggregate quantities of hazardous materials stored and used do not exceed the quantities set forth in Table 453.7.3.1 (see Section 453).

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Chapter 3 – Congregate Living Facilities: R-2, R-3, R-4

There are a number of subtle changes in to both the IBC and the CBC to occupancy classification criteria for group living and group care facilities such as boarding houses, fraternities & sororities, rehabilitation centers and residential care facilities. If you practice in these areas examine the various occupancy classification criteria in Section 310 between R-2, R-3 and R-3 occupancies.

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Chapter 3 – Congregate Living Facilities: R-2

310.3 Residential Group R-2. Residential Group R-2 occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

- Apartment houses
- Congregate living facilities (nontransient) with more than 16 occupants
- Boarding houses (nontransient)
- Convents
- Dormitories
- Fraternities and sororities
- Monasteries
- Hotels (nontransient)
- Live/work units
- Motels (nontransient)
- Vacation timeshare properties

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Chapter 3 – Congregate Living Facilities: R-3

310.4 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

- Buildings that do not contain more than two *dwelling units*
- Care facilities that provide accommodations for five or fewer persons receiving care
- Congregate living facilities (nontransient) with 16 or fewer occupants
- Boarding houses (nontransient)
- Convents
- Dormitories
- Fraternities and sororities
- Monasteries
- Congregate living facilities (transient) with 10 or fewer occupants
- Boarding houses (transient)
- Lodging houses (transient) with five or fewer *guest rooms* and 10 or fewer occupants

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Chapter 3 – Congregate Living Facilities: R-4

310.5 Residential Group R-4. Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. Buildings of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.5.1 or 310.5.2. This group shall include, but not be limited to, the following:

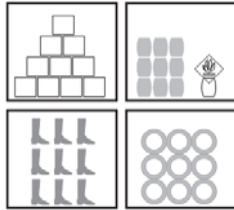
- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities
- Group homes
- Halfway houses
- Residential board and care facilities
- Social rehabilitation facilities

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311.1.1 Accessory Storage

Per revisions to § 311.1.1, the criteria for what may be considered to be “accessory storage spaces” and be a part of that occupancy and not considered some kind of “S” occupancy have been simplified and made less restrictive. The 100 sf limit on such spaces has been removed. Also the limit on aggregating such areas has been removed

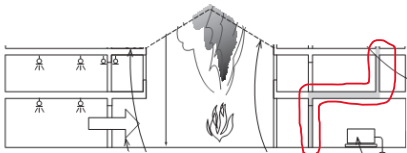


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404.5 & 6 – 2-story atriums

In other than I-2 occupancies smoke control is not required in 2-story “atriums”. A change to Section 404.6 Item 4 clarifies that a fire barrier is not required between the atrium and the adjoining spaces where the atrium is not required to be provided with a smoke control system.



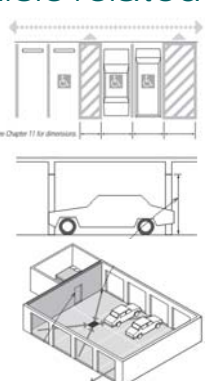
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406 – Motor Vehicle related Occupancies

The sections regarding motor vehicle related occupancies have been reorganized to group all provisions common to all these uses into one section to avoid repetition. There are not any major substantive changes. Items include:

- Accessible parking
- Clear heights
- Floor surfaces and slopes
- Elevation of ignition sources
- Relation to sleeping rooms



• See Chapter 17 for dimensions

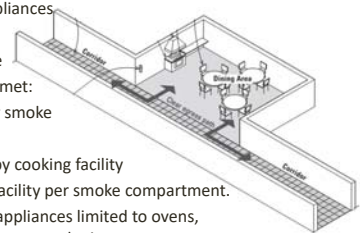
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407.2.6 Nursing Home Cooking Facilities –Slide 1

In Group I-2 Condition 1 occupancies, rooms with domestic cooking appliances may be open to the corridor where **all** the following criteria are met:

1. < 30 occupants per smoke compartment.
2. < 30 users served by cooking facility
3. Only one cooking facility per smoke compartment.
4. Domestic cooking appliances limited to ovens, cooktops, ranges, warmers and microwaves.
5. The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.



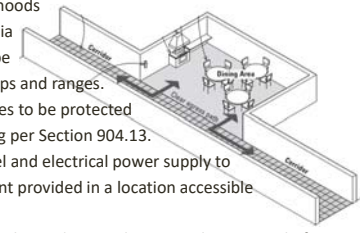
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407.2.6 Nursing Home Cooking Facilities –Slide 2

In Group I-2 Condition 1 where **all** of the following criteria are met:

6. Domestic cooking hoods to be per the California *Mechanical Code* to be provided over cooktops and ranges.
7. Cooktops and ranges to be protected with fire extinguishing per Section 904.13.
8. Shut-off for the fuel and electrical power supply to the cooking equipment provided in a location accessible only to staff.
9. A timer deactivates the cooking appliances within a period of not more than 120 minutes.
10. Provide a portable fire extinguisher within a 30- foot distance of travel from each domestic cooking appliance.



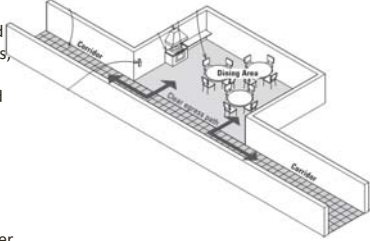
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420.11 Dorm Cooking Facilities

Cooking areas may be provided in R-2 dormitories if:

- Appliances limited to ovens, cooktops, ranges, warmers, coffee makers and microwaves.
- In approved locations
- Range hood per CMC
- Hood protected per 904.13 with fire suppression



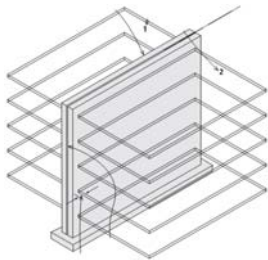
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503.1 Fire Wall Criteria

Change to fire wall criteria to clarify their use for height and area adjustments

503.1 General. ... For the purposes of determining area limitations, height limitations and type of construction, each portion of a building separated by one or more fire walls complying with Section 706 shall be considered to be a separate building.



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503.1.4 – Occupied Roofs

A roof level may be an occupied roof provided the occupancy of the roof is an occupancy that is permitted by Table 504.4 for the story immediately below the roof. The area of the occupied roof is not to be included in the building area.

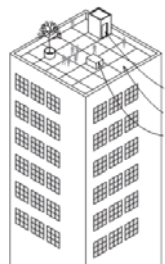
Exceptions:

1. The occupied roof occupancy is not limited to the occupancies allowed on the story immediately below the roof when the building is sprinklered
2. Assembly occupancies are permitted on roofs of open parking structures of Type I or Type II Construction

503.1.4.1 Enclosures over occupied roof areas. Elements or structures enclosing the occupied roof areas may not extend more than 48 inches above the surface of the occupied roof.

Exception: Penthouses constructed in accordance with Section 1510.2 and towers, domes, spires and cupolas constructed in accordance with Section 1510.5.

This provision implies that overhead structures such as trellises may be seen to create additional stories.



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Table 506.2 - OOPS!

THERE IS AN ERROR IN THE AREA TABLES FOR SECTION 606.2 SHOWING "W/O AREA INCREASE" INSTEAD OF "W/O HEIGHT INCREASE" FOR SFM OCCUPANCIES – NO CHANGE WAS INTENDED – NUMBERS REMAIN THE SAME – ERRATA WILL BE ISSUED, BUT LIKELY NOT UNTIL 2020

2016 TABLE 506.2 R-2 EXAMPLE – NO CHANGE FOR 2019

R-2*	NS*	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
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	SM (with height increase)	UL <td>UL <td>24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td></td></td>	UL <td>24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td></td>	24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td>	16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td>	24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td>	16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td>	20,500 <td>12,000 <td>7,000 </td></td>	12,000 <td>7,000 </td>	7,000

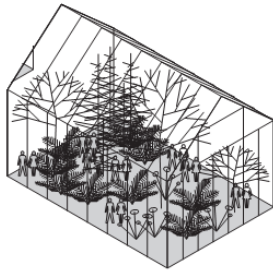
2019 TABLE 506.2 R-2 EXAMPLE – NOTE SAME #'S

R-2*	NS*	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
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	SM (without area increase)	UL <td>UL <td>24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td></td></td>	UL <td>24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td></td>	24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td>	16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td>	24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td>	16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td>	20,500 <td>12,000 <td>7,000 </td></td>	12,000 <td>7,000 </td>	7,000
	SM (with area increase)	UL <td>UL <td>24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td></td></td>	UL <td>24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td></td>	24,000 <td>16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td></td>	16,000 <td>24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td></td>	24,000 <td>16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td></td>	16,000 <td>20,500 <td>12,000 <td>7,000 </td></td></td>	20,500 <td>12,000 <td>7,000 </td></td>	12,000 <td>7,000 </td>	7,000

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Table 506.2 TYPE VB "U" Occupancy Greenhouses

Per Footnote "i"
unsprinklered
Type VB "U"
Occupancy
greenhouses may
be 9,000 sf in
allowable area,
which is equal to
prior VA allowable
area from 2016
CBC



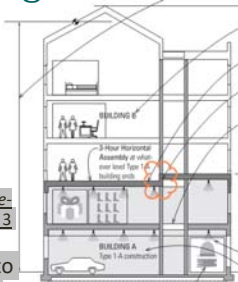
41

510. Vertical offsets in podium buildings

When there is a vertical offset in the 3 hour horizontal assembly the code now clearly states:

Where vertical offsets are provided as part of a horizontal assembly, the vertical offset and the structure supporting the vertical offset shall have a fire-resistance rating of not less than 3 hours.

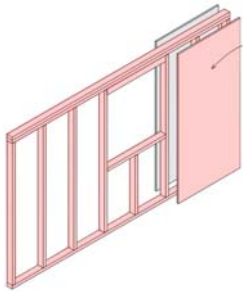
Unclear how this applies to opening protection at full story offsets



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602.4.1 FRT Sheathing in Type III construction

Code now clearly states that FRT sheathing may be used in two-hour or less assemblies in Type IIIA construction where FRT framing is used and assemblies are not less than 6" thick

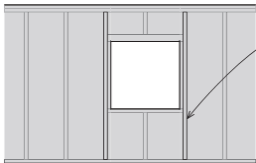


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704.4.1 1-story column membrane fire protection

Code now states that single story columns located between the top and bottom plates may rely on wall membrane fire protection. Does not apply to continuous columns. Applies to both wood and steel light framing




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44

704.6.1 Secondary attachments to structural members

704.6.1 Secondary attachments to structural members. Where primary and secondary structural steel members require fire protection, secondary attachments to those structural members shall be protected with the same fire resistive material and thickness as required for the structural member. The protection shall extend away from the structural member a distance of not less than 12 inches, or shall be applied to the entire length when the attachment is less than 12 inches long. When an attachment is hollow and the ends are open, the fire resistive material and thickness shall be applied to both exterior and interior of the hollow steel attachment.



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45

Table 705.2 Projection Distances

New rules for projections at property lines fixes broken Table 705.2 from 2015 IBC

• Exterior face of outside wall

• Fire-separation distance (D)

46

Table 705.2 Projection Distances

2019

FIRE SEPARATION DISTANCE-FSD (feet)	MINIMUM DISTANCE FROM LINE USED TO DETERMINE FSD
0 to less than 2	Projections not permitted
2 to less than 3	24 inches
3 to less than 5	24 inches plus 8 inches for every foot of FSD beyond 3 feet or fraction thereof
5 or greater	40 inches

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

2016

FIRE SEPARATION DISTANCE (FSD)	MINIMUM DISTANCE FROM LINE USED TO DETERMINE FSD
0 feet to 2 feet	Projections not permitted
Greater than 2 feet to 3 feet	24 inches
Greater than 3 feet to less than 30 feet	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.

47

705.2.3 Combustible projections and balconies

Moved from 1405 in 2016 CBC1-hour or HT @ <5'. May be unrated construction if sprinkler protection is provided at the projection – typ. side wall heads - SFM adds vent provisions for fire rated decks

48

705.2.3.2 Vents at balconies

705.2.3.2 Vents. [SFM] Vents required by Section 2304.12.2.6 in fire rated exterior balconies or elevated walkway surfaces shall be designed where the voids created at the intersection of the exterior curtain wall and the balcony floor are sealed with an approved material or system to retard the interior spread of flame, hot gases and products of combustion. Rated assemblies shall comply with Section 715. Ventilation openings shall comply with WUI requirements where applicable. Balconies shall comply with the fire sprinkler protection as required by 903.3.1.1 or 903.3.1.2 and the reference standard.

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706.1.1 Fire Walls as Party Walls - Exception 2:

2. Fire walls are not required on lot lines dividing a building for ownership purposes where the aggregate height and area of the portions of the building located on both sides of the lot line do not exceed the maximum height and area requirements of this code. For the code official's review and approval, he or she shall be provided with copies of dedicated access easements and contractual agreements that permit the owners of portions of the building located on either side of the lot line access to the other side for purposes of maintaining fire and life safety systems necessary for the operation of the building.

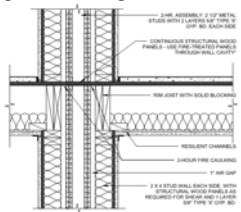
1/29/2020

50

706.2 Exception – Plywood @ Fire Walls:

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions...

Exception: In Seismic Design Categories D through F, where double fire walls are used in accordance with NFPA 221, floor and roof sheathing not exceeding 3/4 inch (19.05 mm) thickness shall be permitted to be continuous through the wall assemblies of light frame construction. Typical SEOC



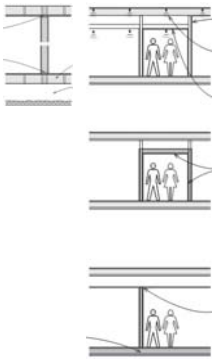
seismic detail recommendation

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51

708.4 Fire Partition Continuity

There are a number of subtle changes to the connection and continuity criteria for "Fire Partitions". These occur in many places such as R occupancy separation walls, tenant separations, corridors and elevator lobbies among other uses.

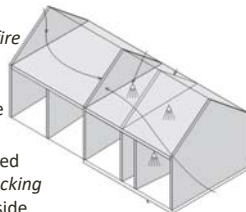


Upright

52

708.4.2 Fireblocks & Draftstops in combustible construction

Fireblock and draftstop requirements in combustible construction have been consolidated and modified. In combustible construction where *fire partitions* do not extend to the underside of the floor or roof sheathing, deck or slab above, the space above and along the line of the *fire* partition are to be provided with one of the following: *Fireblocking or draftstopping* up to the underside of the floor or roof sheathing, deck or slab above, **except** where sprinklers are provided

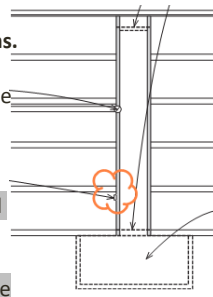


Upright

53

713.8.1 Membrane Penetrations at outside of shafts

713.8.1 Prohibited penetrations. Penetrations other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures.
Exception: Membrane penetrations shall be permitted on the outside of shaft enclosures. Such penetrations shall be protected in accordance with Section 714.4.2.



Upright

54

707A.3 Exterior Walls

707A.3 Exterior walls. The exterior wall covering or wall assembly shall comply with one of the following requirements:

1. Noncombustible material
2. Ignition-resistant material
3. Heavy timber exterior wall assembly-Sawn lumber or glue laminated wood with the smallest minimum nominal dimension of 4 inches (102 mm). Sawn or glue-laminated planks splined, tongue-and-grove, or set close together and well spiked.

55

707A.8 Underfloor protection

707A.8 Underfloor protection. The underfloor area of elevated or overhanging buildings shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following:

1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.
5. The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in either of the following:
 - 5.1. SFM Standard 12-7A-3; or
 - 5.2. ASTM E2957

Exception: Heavy timber-Structural columns and beams do not require protection when constructed with sawn lumber or glue laminated wood with the smallest minimum nominal dimension of 4 inches (102 mm). Sawn or glue-laminated planks splined, tongue-and-grove, or set close together and well spiked.

56

707A.8 Underside of appendages

707A.8 Underside of appendages. When required by the enforcing agency the underside of overhanging appendages shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following:

1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in either of the following:
 - 5.1. SFM Standard 12-7A-3; or
 - 5.2. ASTM E2957

Exception: Heavy timber-Structural columns and beams do not require protection when constructed with sawn lumber or glue-laminated wood with the smallest minimum nominal dimension of 4 inches (102 mm). Sawn or glue-laminated planks splined, tongue-and-grove, or set close together and well spiked.

57

708A.2.2 Operable skylights

708A.2.2 Operable Skylights.

Operable skylights shall be protected by a non-combustible mesh screen where the dimensions of the openings in the screen shall not exceed 1/8-inch (3.2mm).

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708A.4 (R337.8.4) Garage door perimeter gap weather stripping

708A.4 (R337.8.4) Garage Door Perimeter Gap Weather stripping. Exterior garage doors shall be provided with weather stripping to resist the intrusion of embers from entering by preventing through gaps between doors and door openings, at the bottom, sides and tops of doors, from exceeding gaps exceed 1/8-inch (3.2 mm). Weather stripping or seals shall be installed on the bottom, sides, and tops of doors to reduce gaps between doors and door openings to 1/8-inch (3.2 mm) or less. Gaps between doors and door openings shall be controlled by one of the following methods:

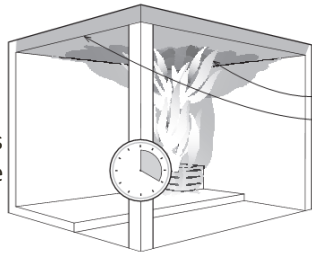
1. Weather stripping products made of materials that: (a) have been tested for tensile strength in accordance with ASTM D638 (Standard Test Method for Tensile Properties of Plastics) after exposure to ASTM G155 (Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials) for a period of 2000 hours, where the maximum allowable difference in tensile strength values between exposed and non-exposed samples does not exceed 10%, and (b) exhibit a V-2 or better flammability rating when tested to UL 94, Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
2. Door overlaps onto jambs and headers.
3. Garage door jambs and headers covered with metal flashing.

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803.1.1 Wall & Ceiling Finish test criteria

Instead of using ASTM E84 or UL 723, the code now allows compliance with NFPA 286. This test is known as the "room corner" fire test. This test has good performance prediction qualities.

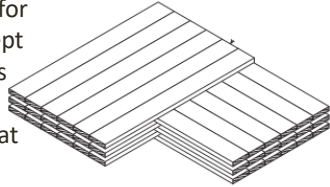


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803.3 HT in exit enclosures

No interior finish requirements for CLT or HT except new provisions for meeting requirements at interior exit stairs & ramps and at exit passageways

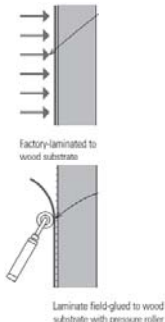


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803.11 & 12 Laminated products on wood backing

New sections address laminated products over wood substrates. § 803.11 covers factory-produced materials and § 803.12 covers laminates applied on-site over wood substrates. The test criteria are to be per NFPA 286 in § 803.1.1.1, with the materials meeting the flame spread indexes for ASTM E84 or UL 723

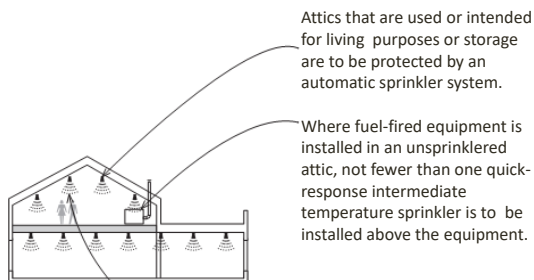


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903.3.1.2 – Attic Sprinklers

Per § 903.3.1.2.3, attic fire protection must be provided under certain conditions:




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Short Break


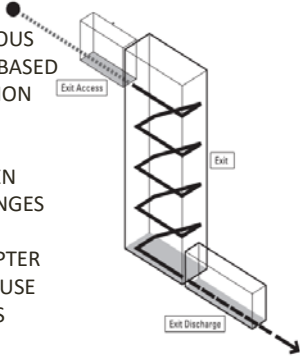
Questions??



64

Chapter 10 – Means of Egress


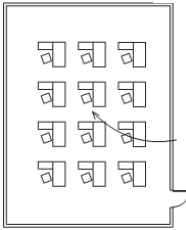
AS FOR EVERY PREVIOUS EDITION OF THE IBC-BASED CBC THE ORGANIZATION AND SOME OF THE NOMENCLATURE IN CHAPTER 10 HAS BEEN REVISED. MOST CHANGES ARE EDITORIAL, BUT APPROACH THE CHAPTER WITH CAUTION AND USE KEY WORD SEARCHES



65

1004.8 Concentrated Business Uses

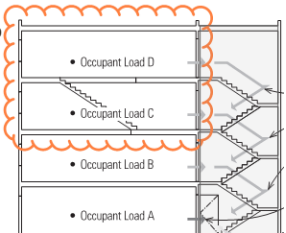
The occupant load factor for concentrated business uses like telephone call centers, trading floors, “tech industry” uses and similar business use areas with a higher density of occupants than a normal business may be the actual occupant load with AHJ approval, but not less than one occupant per 50 square feet (4.65 m²) of gross occupiable floor space.



66

1006.3 Egress from stories or occupied roofs

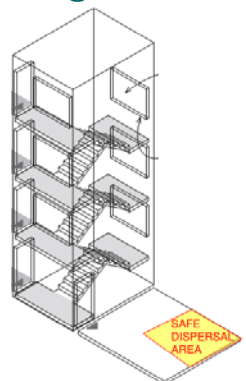
Per § 1006.3.1, the path of egress travel to an exit may not pass through more than one adjacent story. See Exceptions in § 1006.3.1. This seems at odds with multiple level open stairs allowed by Section 1019 for open exit access stairs



67

1008.2 Exit Discharge Illumination

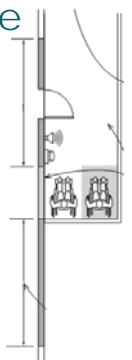
Where a means of egress leads to a safe dispersal area per § 1028.5, that area must be lit with 1 foot-candle (11 lux) of illumination.



68

1009.7.2 Protection of exterior areas of assisted rescue

Exterior areas for assisted rescue are to be open to the outside air and, in unsprinklered buildings, they are to be separated by walls of 1-hour construction with 3/4-hour doors. The protection must extend beyond the area laterally and vertically for 10', but only in unsprinklered buildings.

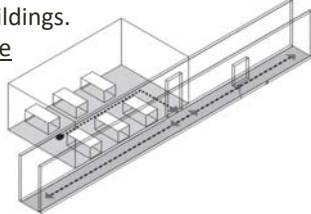


69

2016 CBC Interim Change Table 1020.1 Corridors

Per the CBC 7/1/16 Supplement (blue pages) corridors at "E" occupancies are no longer required to be 1 hour fire-resistance rated, but may be unrated in sprinklered buildings.

Keep up to date
so you don't
miss big
changes



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1010.1.4.4 Locking at Educational Occupancies

In Group E and Group B educational occupancies, egress doors from classrooms and other occupied rooms are permitted to be provided with locking arrangements designed to keep intruders from entering the room where all of the following conditions are met:

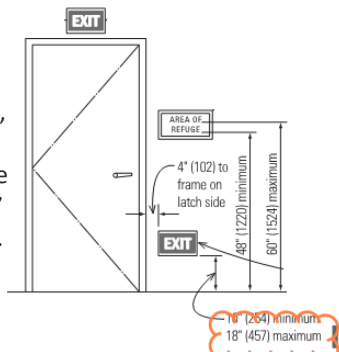
1. The door is capable of being unlocked from outside the room with a key or other approved means.
2. The door is readily openable from within the room to comply with § 1010.1.9.
3. Modifications may not be made to listed panic hardware, fire door hardware, or door closers.

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1013.2 Low Level Exit Sign Location

Where required, which is in R-1 transient lodging, low level exit signs may now be located up to 18" above floor level.



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1015.6 & 1015.7 fall arrest at mechanical equipment

Guards are to be provided where various components that require service are located within 10 feet of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above grade.

Exception: Guards are not required where personal fall arrest anchorage connector devices that comply with ANSI/ASSE Z 359.1 are installed.

73

1023.5 & 1024.6 Exit Stairway & Exit Passageway Penetrations

Penetrations into or through interior exit stairways and ramps are prohibited except for the following:

1. Equipment and ductwork necessary for independent ventilation or pressurization.
2. Fire protection systems.
3. Security systems.
4. Two-way communication systems.
5. Electrical raceway for fire department communication systems.
6. Electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches.

Penetrations may be made for items that serve the enclosure itself

74

1030.1 Emergency Escape and Rescue Openings

2016 CBC

1030.1 General. In addition to the means of egress required by this chapter, provisions shall be made for emergency escape and rescue openings in Group R occupancies. Basements and sleeping rooms below the fourth story above grade plane shall have at least one exterior emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way or to a yard or court that opens to a public way.

Exceptions:

1. In Groups R-1 and R-2 occupancies constructed of Type I, Type IIa, Type IIIa or Type IV construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

2019 CBC

1030.1 General. In addition to the means of egress required by this chapter, emergency escape and rescue openings shall be provided in the following occupancies:

1. Group R-2 occupancies located in stories with only one exit or access to only one exit as permitted by Tables 1006.3.3(1) and 1006.3.3(2).
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth story above grade plane shall have not fewer than one exterior emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way or to a yard or court that opens to a public way.

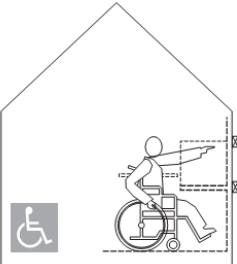
Exceptions:

1. In Groups R-1 and R-2 occupancies constructed of Type I, Type IIa, Type IIIa or Type IV construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.5.

75

CBC Chapter 11A Housing Accessibility

HCD adopted Chapter 11A from the 2016 California Building Code into the 2019 California Building Code with no modifications.
= to Fair Housing Act "adaptable" units as in current code



76

CBC Chapter 11A Housing Accessibility – Existing Buildings

I recommend a proactive approach to providing adaptable units in existing buildings. Per 1101A.1 **Scope** the chapter is to apply to the following conditions for existing buildings:

5. *Where any portion of a building's exterior is preserved, but the interior of the building is removed, including all structural portions of floors and ceilings, the building is considered a new building for determining the application of this chapter.*

This can be (and often is) construed as not requiring access for changes of use or occupancy for existing buildings unless all floors are removed

But 1102 says:

1102A.2 Existing buildings. *The building standards contained in this chapter do not apply to the alteration, repair, rehabilitation or maintenance of multifamily dwellings constructed for first occupancy prior to March 13, 1991.*

This is in conflict with the limits of 1101A.1.5 and can be seen to require adaptable units at changes of use or occupancy for non-multifamily buildings.

77

Table 11B-224.2 Guest Rooms with Mobility Features

Total Number of Guest Rooms Provided	Minimum Number of Required Rooms Without Roll-in Showers ¹	Minimum Number of Required Rooms With Roll-in Showers ²	Total Number of Required Rooms
1	1	0	1
2 to 25	2	1	3
26 to 50	3	2	5
51 to 75	4	3	7
76 to 100	5	4	9
101 to 150	6	5	11
151 to 200	7	6	13
201 to 300	8	8	16
301 to 400	9	10	19
401 to 500	10	12	22
501 to 1000	2 percent of total	1 percent of total	3 percent of total
1001 and over	20, plus 1 for each 100, or fraction thereof, over 1000	10, plus 1 for each 100, or fraction thereof, over 1000	30, plus 2 for each 100, or fraction thereof, over 1000

1. Provide either a bathtub complying with Section 11B-607 or a transfer type shower complying with Section 11B-608.2.1.

2. Provide either a standard roll-in type shower complying with Section 11B-608.2.2 or an alternate type roll-in shower complying with Section 11B-608.2.3.

78

11B-249 Adult Changing Facilities

11B-249 Adult changing facilities

11B-249.1 General. Adult changing facilities shall comply with Section 11B-249.

11B-249.1.1 Where adult changing facilities are provided, each adult changing facility shall comply with Section 11B-813.

11B-249.1.2 Newly constructed commercial places of public amusement shall provide no fewer than one adult changing facility in compliance with Section 11B-813.

11B-249

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New Definition –

Commercial place of public amusement. An auditorium, convention center, cultural complex, exhibition hall, permanent amusement park, sports arena, theater or movie house for which the maximum occupancy is 2,500 or more for the facility. Cultural complexes include but are not limited to art galleries, symphony, concert halls, and museums. A commercial place of public amusement does not include any public or private higher education facility or district agricultural associations.

11B-249

80

11B-604.8.1 Wheelchair accessible compartments.

11B-604.8.1.2 Doors. Toilet compartment doors... Doors shall be located in the front partition or in the side wall or partition farthest from the water closet. Where located in the front partition, the door opening shall be 4 inches (102 mm) maximum from the side wall or partition farthest from the water closet. Where located in the side wall or partition, the door opening shall be 4 inches (102 mm) maximum from the front partition. The door opening hinge side jamb for out-swinging doors shall be farthest from the water closet and the strike side jamb shall be 54 inches (1372 mm) minimum from the rear wall. ...

11B-604

81

Fig. 11B-604.8.1.2 Toilet Compartments

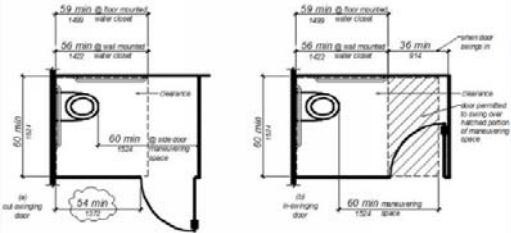


FIGURE 11B-604.8.1.2
MANEUVERING SPACE WITH SIDE-OPENING DOOR

82

Figs. 11B-608.2.1 & 608.5.1 Transfer type showers

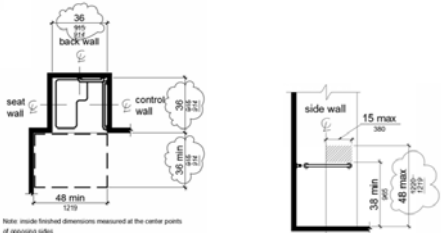


FIGURE 11B-608.2.1 TRANSFER TYPE SHOWER
COMPARTMENT SIZE AND CLEARANCE

FIGURE 11B-608.5.1 TRANSFER TYPE SHOWER
COMPARTMENT CONTROL LOCATION

83

11B-814 Adult Changing Facilities

11B-813.1 Location. Adult changing facilities shall be provided within a unisex (single-user or family) toilet room or other similar private room.

11B-813.2.1.5 Obstructions. When deployed, changing tables shall not obstruct the required width of an accessible route except as allowed by Section 11B-307.2.

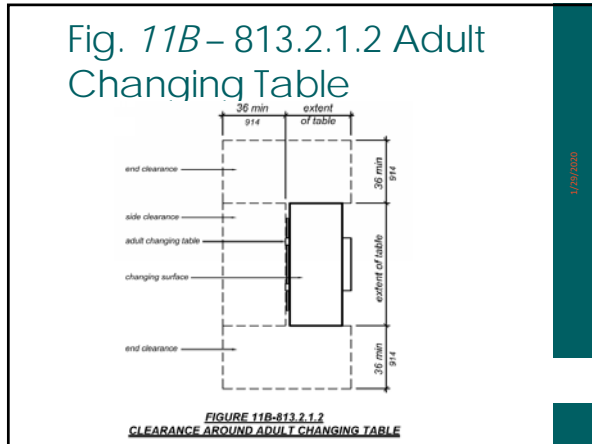
11B-813.2.2 Water closet. No fewer than one water closet in compliance with Section 11B-604.

11B-813.2.3 Lavatory. One lavatory in compliance with Section 11B-606.

11B-813.2.8 Turning space. Turning space complying with Section 11B-304 shall be provided within adult changing facilities.

11B-813.2.9 Overlap. Required clear floor spaces, clearance at fixtures, and turning space shall be permitted to overlap.

84



85

1206.2 Engineering analysis of sound transmission assemblies

Sound transmission criteria are established using ASTM test criteria for both airborne sound (ASTM E 90) and for structure-borne sound (ASTM E 492). Now, the sound transmission class of walls, partitions, and floor-ceiling assemblies may be established by engineering analysis based on a comparison of tested wall partition, and floor-ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E90 by comparing with other tested assemblies.

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Table 1404.2 - Stone and masonry veneer thickness

COVERING TYPE	MIN. THICKNESS (inches)
Adhered masonry veneer	0.25
• Architectural Cast Stone	0.75
• Other	0.25
Anchored masonry veneer	2-6.25
• Stone (natural)	2.0
• Architectural Cast Stone	1.25
• Other	2.625

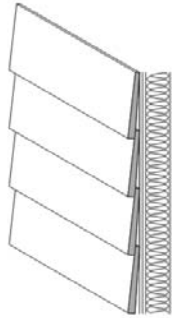
UPDATED TO CURRENT INDUSTRY TERMS

87

1404.18 Polypropylene Siding

Polypropylene siding used to be limited to VB construction only. Now it can be used on any construction type if it meets defined fire test criteria.

However, it is limited to exterior walls located in areas where the wind speed does not exceed 100 miles per hour and the building height is less than or equal to 40 feet (12 192 mm) in Exposure C.

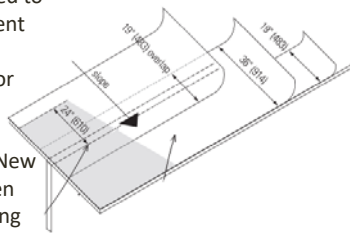


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1507.1 Roof Underlayment

This section has been reorganized to put underlayment and ice barrier requirements for various roofing materials into a single section. New tables have been added addressing type, application and fastening.



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1705.12. Special Inspections for Fire Sprinkler Clearance

Special inspection is now required for minimum clearance of fire sprinkler components to structure and to MEP equipment in Seismic Design Category C, D, E or F for

- Minimum clearances have been provided as required ASCE/SEI 7
- A nominal clearance of not less than 3 inches is to be provided between fire protection sprinkler system drops and sprigs to adjacent structure.

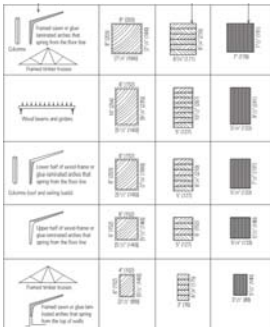


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2304.11 Heavy Timber Construction

Heavy timber provisions in Chapter 23 have been reorganized and information about dimensional equivalencies has been relocated from Section 602.4 to Section 2304.11

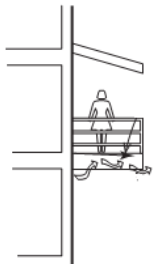


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2304.12.2.5 & 6 Slopes & Vents at deck and roof supports

- Per § 2304.12.2.5, the impervious moisture barrier system protecting the structure supporting floors must provide positive drainage of water that infiltrates the moisture permeable floor topping.
- Per § 2304.12.2.6, enclosed framing in exterior balconies that are exposed to rain, snow, or water are to be provided with openings that provide a net free cross-ventilation area not less than 1/150 of the area of each separate space between framing members.

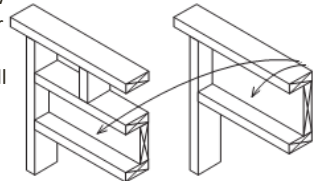


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2308.5.5.1 Single headers in conventional framing

The conventional wood framing provisions now allow single headers under certain limited conditions with small spans to allow for provision of increased wall insulation.



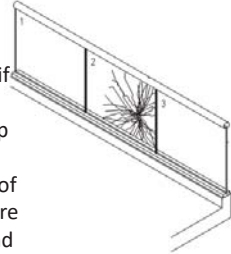
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2407.1.2 Structural Glass Baluster Panels

Structural glass baluster panels are to have an attached top rail. The top rail must be supported by at least three glass baluster panels. It must remain in place if one glass baluster panel fails.

- Per exception, an attached top rail is not required where the glass baluster panels are made of laminated glass with two or more glass plies of equal thickness and of the same glass type.



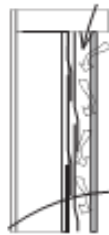
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2510.6 Water-resistive Barriers

Increased condition by Exception:

Where the water-resistive barrier is applied over wood-based sheathing in Climate Zones 1A, 2A, or 3A, a ventilated air space is to be provided between the exterior stucco and water-resistive barrier to prevent moisture penetrating the water-resistive barrier.



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2603.2.1 Labeling of Foam Insulation without flame retardants

2603.2.1 Labeling of polystyrene foam insulation without flame retardants. In addition to the requirements of Section 2603.2, polystyrene foam insulation boards manufactured with no flame retardants added shall be labeled in accordance with this section.

1. Each board shall be labeled on each face every 8 square feet in red 1/2" text with the following information:

WARNING - FIRE HAZARD

This product is required to be installed below a minimum 3.5-inch thick concrete slab on grade.

NOT FOR VERTICAL OR ABOVE GRADE APPLICATIONS

This product contains NO flame retardants

Not tested for flame spread or smoke development requirements of the model building codes

2. Each package shall be labeled on at least two sides in red 1/2" text with the following information:

WARNING - COMBUSTIBLE MATERIAL

Keep away from ignition sources

Maintain code required separation between product storage and structures under construction (minimum 30 feet).

...

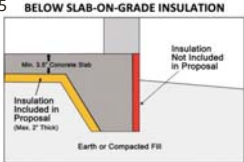
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2603.3 Ex. 6 Installation of Foam Insulation without flame retardants

2603.3 Surface Burning
Characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450

Exceptions: ...
6. Polystyrene foam insulation boards with a maximum thickness of 2-inches when installed below a minimum 3.5-inch thick concrete slab on grade.



RB-131-19 Code Change proposal to IRC

97

2603.13 Cladding over foam sheathing at wood framing

Provisions for sheathing over foam sheathing have been introduced into the IBC from the International Residential Code. This section addresses fastening siding over thick foam insulation on the exterior of the building. Two tables include fastening requirements based on whether furring is provided under the siding or not.

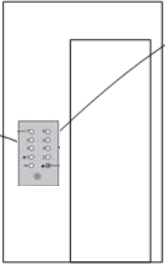


98

3001.2 Accessible emergency elevator communications

Additional 2-way communications capabilities are now required at accessible elevators for use by persons with hearing & speech disabilities that:

1. Is a visual text-based and a video-based 24/7 live interactive system.
2. Is fully accessible by the deaf, hard of hearing and speech impaired, and includes voice-only options for hearing individuals.
3. Has the ability to communicate with emergency personnel utilizing existing video conferencing technology, chat/text software, or other approved technology



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Slide 97

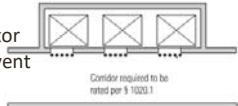
SW1

Steven Winkel, 9/16/2019

3006.2.1 Corridors at elevator hoistway openings

Where elevators open into a corridor required to be fire-resistance rated elevator hoistway openings are to be protected per § 3006.3, which has three options:

1. Elevator lobbies separating the elevator lobby from the corridor.
2. Additional doors that close over the elevator doors.
3. Pressurization of the elevator hoistway per § 909.21 to prevent smoke from entering the hoistway.

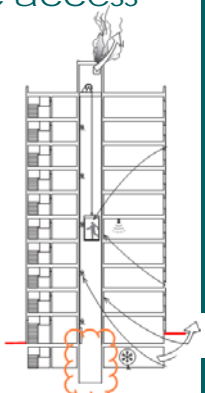


Corridor required to be rated per § 1020.1

100

3007.1 Fire service access elevator travel

When required by § 403.6.1 fire service access elevators need to serve only levels at or above the lowest level of fire department access. Thus, levels below the lowest level of fire department access need not be served by fire service access elevators.

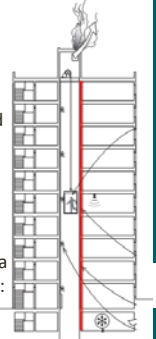


101

3007.1 Fire service access elevator electrical protection

3007.8.1 Protection of wiring or cables. Wires located outside of the rated elevator hoistway and machine room for normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to fire service access elevators shall be protected with one of the following methods:

1. Cables shall meet UL 2197 with fire-resistance rating of not less than 2 hours, OR:
2. Have electrical circuit protective systems with a fire-resistance rating of not less than 2 hours, OR:
3. Be in construction having a fire-resistance rating of not less than 2 hours.



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CA Existing Building Code 405 Structural Repairs

CBSC voted not to approve Structural repair “triggers” in IEBC Sections 405.2 - 405.2.3.2 based on CA statute allowing “replacement in kind”. Pay close attention to adoption tables since these sections may be printed in code but not adopted. That was the case in the 2016 CEBC in Repair Section 404.

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CA Residential Code R302.2.2.1 Seismic Design

New seismic design category (SDC) maps are included in the 2018 IRC.

One map contains the most conservative ‘good quality’ soil type, assuming Site Class C or D, and may increase the local SDC. The second map is allowed if the site is identified as being Site Class A, B or D by geotechnical report or known local soil conditions; this map may lower the design spectral response acceleration, SDS, potentially lowering the seismic design category.

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CA Residential Code Admin. 1.8.10.1

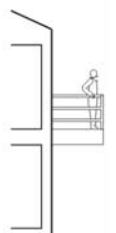
1.8.10.1 Existing structures.
Notwithstanding other provisions of law, the replacement, retention, and extension of original materials and the use of original methods of construction for any existing building or accessory structure, or portions thereof, shall be permitted in accordance with the provisions of this code and the California Existing Building Code....

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CA Residential Code Admin. R109.1.5.3 Exterior Balcony Weather Protection

The provisions for weather-exposed balconies and walking surfaces found in the CBC also apply to the CRC.



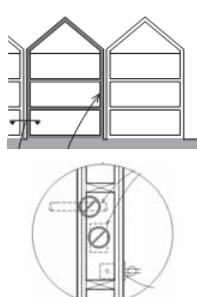
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CA Residential Code R302.2 Townhouse Party Walls

There are two paths for achieving the fire-resistant separation between townhouse dwelling units

- two 1-hour walls or a common wall
- are spelled out in the townhouse provisions.

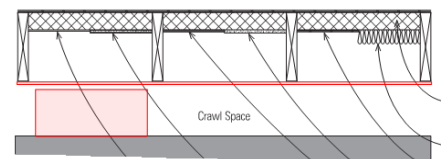


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CA Residential Code R302.13 Fire Protection of Floors

Fire-resistant membrane protection is now required for the applicable floor framing materials above crawl spaces containing fuel-fired or electric powered heating appliances.



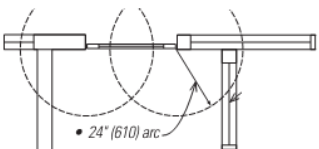
Crawl Space

1/29/2020

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CA Residential Code R308.4.2 Safety Glazing

Glazing within 24 inches of the hinge side of an in-swinging door now requires safety glazing where the glazing is at an angle less than 180 degrees from the plane of the door.



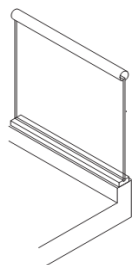
• 24" (610) arc

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CA Residential Code R308.4.4 Glass Rails

Unless laminated glass is used, structural glass baluster panels in guards now require an attached top rail or handrail.

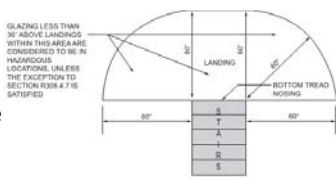


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CA Residential Code Fig. R308.4.7

Figure R308.4.7 has been replaced with a new figure and the caption modified to more accurately reflect when safety glazing is required near the bottom landing.



GLAZING LESS THAN 36" ABOVE LANDINGS WITHIN THIS AREA ARE CONSIDERED TO BE IN HAZARDOUS LOCATIONS UNLESS THE EXCEPTION TO SECTION R308.4.7 IS SATISFIED

LANDING

BOTTOM TREAD NOSING

FIGURE R308.4.7
HAZARDOUS GLAZING LOCATIONS AT BOTTOM STAIR LANDINGS


1/29/2020

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CA Residential Code R310.1 EERO at Basement

Emergency escape and rescue openings are no longer required for bedrooms in basements when the dwelling unit is protected with an automatic fire sprinkler system and other conditions are met:


1. One means of egress and one Emergency Escape and Rescue Opening for the basement.
2. Or – Two means of egress



112

CA Residential Code R311.7.11 & .12


Alternating tread devices and ships ladders are now permitted as a means of egress for lofts with an area that does not exceed 200 square feet.



113

CA Residential Code R312.1.2


The guard requirements only apply to the specific portion of a walking surface that exceeds 30 inches above grade.



114

CA Residential Code
R324.6 – Roof Access at PV Panels


Requirements for roof access and pathways for firefighters have been introduced into the IRC provisions for rooftop mounted photovoltaic solar energy systems.



115

CA Residential Code
R324.6.2.2 PV's at EERO's

Rooftop mounted photovoltaic solar energy panels and modules are not permitted to be installed below emergency escape and rescue openings.




116

CA Residential Code
R325.3 Mezzanine Areas

The area limitation for mezzanines has been increased from one-third to one-half of the area of the room containing the mezzanine under certain conditions:

1. Except for enclosed closets and bathrooms, the mezzanine is open to the room in which such mezzanine is located.
2. The opening to the room is unobstructed except for walls not more than 42 inches (1067 mm) in height, columns and posts.
3. The exceptions to Section R325.5 are not applied.
[R325.5 Exceptions deal with openness of mezzanines to the room.]



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A Little Bit on 2019 Energy - 1

Residential

- The standards require solar photovoltaic systems for new homes
- On the residential side, the standards also encourage demand responsive technologies including battery storage and heat pump water heaters
- The standards improve the building's thermal envelope through high performance attics, walls and windows to improve comfort and energy savings.
- For residential and nonresidential buildings, the standards enable the use of highly efficient air filters to trap hazardous particulates from both outdoor air and cooking and improve kitchen ventilation systems.

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A Little Bit on 2019 Energy - 2

Nonresidential

- For the first time, the standards establish requirements for newly constructed healthcare facilities.
- In nonresidential buildings, the standards update indoor and outdoor lighting making maximum use of LED technology with reduced lighting power allowances
- For residential and nonresidential buildings, the standards enable the use of highly efficient air filters to trap hazardous particulates from both outdoor air and cooking and improve kitchen ventilation systems.

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Thanks for your Time!

Questions??

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