2016 CA BUILDING CODE UPDATES
2.24.2017

Jeff Brink, DCI Engineers

Paul McGrath, MEYERS+ ENGINEERS
AGENDA – 2016 CALIFORNIA BUILDING CODE UPDATES

I. STRUCTURAL CBC UPDATES
- ALLOWABLE BUILDING HEIGHTS + AREAS
- FIRE WALLS
- WOOD FRAMED BUILDINGS
- CROSS LAMINATED TIMBER
- BALCONIES + DECKS
- 2019 CBC – WHAT TO EXPECT

II. MEP MULTIFAMILY SF CODE CHANGES
- SOLAR READY BUILDINGS
- FALL PROTECTION GUARDS
- FILTRATION
- INDEPENDENT EXHAUST SYSTEMS
- WINDOW + DOOR SWITCHES
- COMMISSIONING
- EV CHARGING STATIONS + SFGBO
- INSULATION
- STORMWATER CONTROL PLAN + RECYCLED WATER
- T24 ENVELOPE CRITERIA
<table>
<thead>
<tr>
<th>Fully Sprinkled With Increases</th>
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<th>2016 CBC</th>
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<tr>
<td>Type III A</td>
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<tr>
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<tr>
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<tr>
<td>Area</td>
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### 2013 California Building Code (CBC)

#### Allowable Building Heights and Areas

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<tr>
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<th>NO SPRINKLER SYSTEM NO AREA INCREASE</th>
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<td></td>
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<td>UL UL 24,000 16,000 24,000 16,000 20,500 12,000 7,000</td>
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#### Allowable Building Heights and Areas w/ Automatic Sprinkler System

<table>
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### 2016 vs 2013 – ALLOWABLE BUILDING HEIGHTS + AREAS

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<tr>
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#### 2016 CALIFORNIA BUILDING CODE (CBC)

##### ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GROUND PLANE

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<td>A 65</td>
<td>A 50</td>
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<tr>
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<tr>
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##### ALLOWABLE NUMBER OF STORIES ABOVE GROUND PLANE

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<td>A 5</td>
<td>A 5</td>
<td>A 5</td>
<td>A 4</td>
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<tr>
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<td>Fully Sprinkled with Area Increase</td>
<td>A 11</td>
<td>A 4</td>
<td>A 4</td>
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##### ALLOWABLE AREA FACTOR IN SQUARE FEET

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<td>UL 16,000</td>
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<tr>
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<td>UL 48,000</td>
<td>UL 72,000</td>
<td>UL 48,000</td>
<td>UL 61,500</td>
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<td>Fully Sprinkled with Height Increase</td>
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<td>UL 16,000</td>
<td>UL 24,000</td>
<td>UL 16,000</td>
<td>UL 20,500</td>
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</table>
2016 CBC – FIRE WALLS

2016 California Building Code (CBC)
SECTION 202
DEFINITIONS

FIRE WALL. A fire-resistance-rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

... to allow collapse of construction on either side without collapse of the wall.
2. The building below the horizontal assembly is not greater than one story above grade plane.

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determine area limitations, continuity of fire walls, limitation of number of stories and type of construction where all of the following conditions are met:

1. The buildings are separated with a horizontal assembly having a fire-resistance rating of not less than 3 hours.
2. The building below the horizontal assembly is not greater than one story above grade plane.
3. The building below the horizontal assembly is of Type IIA construction.
4. ...
5. ...
6. ...
7. The maximum building height in feet shall not exceed the limits set forth in Section 503 for the building having the smaller allowable height as measured from the grade plane.
6. The maximum building height in feet shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the grade plane.

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction where all of the following conditions are met:
1. The buildings are separated with a horizontal assembly having a fire-resistance rating of not less than 3 hours.
2. The building below the horizontal assembly is of Type IA construction.
3. ...
4. ...
5. ...
6. The maximum building height in feet shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the grade plane.
2013 vs 2016 CBC – WOOD FRAMED BUILDING

2013 CBC

ONE (1) STORY MAXIMUM

85'-0" MAXIMUM
(70'-0" FOR PRACTICAL PURPOSES)

FIVE (5) STORIES MAXIMUM

RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL

RETAIL / PARKING

TYPE IA CONCRETE

2016 CBC

RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL

RESIDENTIAL

85'-0" MAXIMUM

75'-0" MAXIMUM TO AVOID HIGH-RISE REQUIREMENTS

FIVE (5) STORIES MAXIMUM

RETAIL / PARKING

TYPE IIIA WOOD

TYPE IA CONCRETE
2016 CBC – WOOD FRAMED BUILDINGS

Groups R-1 and R-2 increased to six stories and 75 feet...

Basement has a fire-resistance rating of not less than 2 hours, and the floor area is subdivided by 2-hour fire-resistance-rated fire walls into areas of not more than 3,000 square feet.

...not more than 3,000 square feet.
2016 California Building Code (CBC)

SECTION 202
DEFINITIONS

CROSS-LAMINATED TIMBER. A prefabricated engineered wood product consisting of not less than three layers of solid-sawn lumber or structural composite lumber where the adjacent layers are cross oriented and bonded with structural adhesive to form a solid wood element.
60 PSF for Residential Balconies

5. Balconies and decks
   Same as occupancy served
   (40 PSF for residential balconies)

American Society of Civil Engineers (ASCE) 7-10

TABLE 4-1

<table>
<thead>
<tr>
<th>Balconies and decks</th>
<th>1.5 times the live load for the area served</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(60 PSF for residential balconies)</td>
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</table>
2019 CALIFORNIA BUILDING CODE – WHAT TO EXPECT

17% to 40% Increase in Earthquake Forces

Site specific geotechnical analysis required for Site Class D (most Bay Area sites)
Where Housing Costs Too Much

In the priciest United States metropolitan areas, land restrictions that cap new development have pushed prices much higher than they would be if land-use regulation were drastically cut back, according to a recent paper by two economists.

Source: Ed Glaeser and Joe Gyourko
Where California Housing Costs Too Much

Restrictions that cap new development have pushed home prices in many California cities much higher than they could be, according to a recent paper by two economists.

![Price Comparison Chart]

What Price Would Be

- San Francisco
- Los Angeles
- Ventura, Calif.
- San Diego
- Sacramento
- Riverside, Calif.
- Fresno, Calif.
- Bakersfield, Calif.

What Price Is

- $200k
- 300k
- 400k
- 500k
- 600k
- 700k
- 800k

Source: Ed Glaeser and Joe Gyourko
SECTION 110.10 – MANDATORY REQUIREMENTS FOR SOLAR READY BUILDINGS

(a) Covered Occupancies.

1. Single Family Residences. Single family residences located in subdivisions with ten or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete by the enforcement agency shall comply with the requirements of Section 110.10(b) through 110.10(e).

2. Low-rise Multi-family Buildings. Low-rise multi-family buildings shall comply with the requirements of Section 110.10(b) through 110.10(d).

3. Hotel/Motel Occupancies and High-rise Multi-family Buildings. Hotel/motel occupancies and high-rise multi-family buildings with ten habitable stories or fewer shall comply with the requirements of Section 110.10(b) through 110.10(d).

4. All Other Nonresidential Buildings. All other nonresidential buildings with three habitable stories or fewer shall comply with the requirements of Section 110.10(b) through 110.10(d).

B. Low-rise and High-rise Multi-family Buildings, Hotel/Motel Occupancies, and Nonresidential Buildings. The solar zone shall be located on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet of the building or on covered parking installed with the building project and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area.
MEMORANDUM

TO: Deborah Raphael, Director, Department of the Environment
    Harlan Kelly, Jr., General Manager, Public Utilities Commission

FROM: Alisa Somera, Assistant Clerk, Board of Supervisors

DATE: January 19, 2016

SUBJECT: LEGISLATION INTRODUCED

On February 23, 2016, Supervisor Wiener introduced the following proposed legislation:
FALL PROTECTION GUARDS- OSHA
1015.6 Mechanical equipment, systems and devices. Guards shall be provided where various components that require service are located within 10 feet (3048 mm) 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 the floor, roof or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of such components. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

Exception: Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.
FILTRATION – ARTICLE 38: MERV-13
504.2 Independent Exhaust Systems. Single or combined mechanical exhaust systems shall be independent of other exhaust systems.

504.3 Domestic Range. Ducts used for domestic kitchen range ventilation shall be of metal and shall have smooth interior surfaces.
KITCHEN EXHAUST – SF: DUCTED KITCHEN HOODS

INFORMATION SHEET

NO. M-07
DATE : August 17, 2016
SUBJECT : Mechanical
TITLE : Domestic Range Hood Requirements

PURPOSE : The purpose of this Information Sheet is to provide clarification on the exhaust requirements for domestic ranges.

REFERENCE : 2013 California Mechanical Code

DISCUSSION :
The interpretation of CMC Section 403.7 and Table 403.7 (Residential – kitchens) is to provide hood above the domestic range. The hood shall be ducted and terminated to outside the building per CMC 504.5.

Ducts for domestic range hoods shall be independent of other exhaust systems per CMC 504.2.

Exemption: Kitchen remodel in-kind.

Tom C. Hui, S.E., C.B.O., Director
Department of Building Inspection

Date
502.1 Exhaust Opening Protection. Exhaust openings terminating to the outdoors shall be covered with a corrosion-resistant screen having not less than ¹⁄₄ of an inch (6.4 mm) openings, and shall have not more than ¹⁄₂ of an inch (12.7 mm) openings.

Exception: Clothes dryers.
502.2.1 **Environmental Air Ducts.** Environmental air duct exhaust shall terminate not less than 3 feet (914 mm) from a property line, 10 feet (3048 mm) from a forced air inlet, and 3 feet (914 mm) from openings into the building. Environmental exhaust ducts shall not discharge onto a public walkway.
COMMISSIONING – TITLE 24

• Cx Required if >3 Stories
EV CHARGING STATIONS – CALGREEN

- 4-10% of Spots EV-Charging ‘Ready’

<table>
<thead>
<tr>
<th>TOTAL NUMBER OF ACTUAL PARKING SPACES</th>
<th>NUMBER OF REQUIRED EV CHARGING SPACES</th>
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<tr>
<td>10-25</td>
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<td>26-50</td>
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<tr>
<td>151-200</td>
<td>10</td>
</tr>
<tr>
<td>201 and over</td>
<td>6 percent of total¹</td>
</tr>
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¹. Calculation for spaces shall be rounded up to the nearest whole number.
EV CHARGING STATIONS – CALGREEN

- 4-10% of Spots EV-Charging ‘Ready’
- 10 yrs: 50%?
SFGBO – LEED?
WALL INSULATION – WOOD-FRAME: T24 >3 STORIES

Prescriptive Requirements
- **2013**: R22 Batt + 1” Continuous
- **2016**: R22 Batt + 1” Continuous

Minimum Requirements
- **2013**: R11 Batt + No Continuous
- **2016**: R19 Batt + No Continuous
WALL INSULATION – METAL-FRAME: T24 >3 STORIES

Prescriptive Requirements
• 2013: R19 Batt + 1” Continuous
• 2016: R19 Batt + 2” Continuous

Minimum Requirements
• 2013: R19 Batt + 1” Continuous
• 2016: R19 Batt + ½” Continuous
STORMWATER CONTROL PLAN – SFPUC

- Sites >5000 SF: Reduce Runoff
RECYCLED WATER – SFPUC: DUAL-PLUMBING

• Dual-plumb if >40,000 SF and in Purple Zone
**RECYCLED WATER – SFPUC: TREATMENT**

- Applies to Entire SF if >250,000 SF
- On-Site Rain/Foundation/Gray Water Treatment
- Use for 100% of Toilet Flushing/ Irrigation

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