



Limitations of Conventional Light-Frame Construction
2007 California Building Code, Seismic Design Category D

In the City of Walnut Creek (Seismic Design Category D), buildings are permitted to be constructed in accordance with the provisions of conventional light-frame construction, subject to the following limitations:

1. Story/height

- 1.1 Detached 1- and 2-family dwellings are permitted to be 2 stories in height. [§2308.12.1]
- 1.2 Other structures are limited to 1 story in height. However, see 3.2 below.
- 1.3 Cripple walls having a stud height exceeding 14" are considered a story, and shall be braced per §2308.12.4 and Table 2308.12.4. [§2308.2 Item 1, §2308.12.4]

2. Bearing wall height. Bearing wall floor-to-floor height shall not exceed a stud height of 10' plus a height of floor framing not to exceed 16". [§2308.2 Item 2]

3. Load limitations [§2308.2 Item 3]:

- 3.1 Average dead loads shall not exceed 15 psf for roof and ceiling (combined), exterior walls, floors and partitions.
- 3.2 Floor live loads shall not exceed 40 psf, thereby eliminating most non-residential uses.

4. Roof framing span. Roof framing (trusses or rafters) shall not span more than 40' between bearing points. [§2308.2 Item 5]

5. Irregular structures. Irregular portions of structures are not permitted to use conventional light-frame construction. If a portion of a structure has one or more of the conditions described below, it is considered irregular and must be engineered. [§2308.2 Item 7, §2308.12.6]

5.1 Out-of-plane offset. Where exterior braced wall panels are offset out-of-plane from floor to floor (i.e., not stacked), the structure is considered irregular.

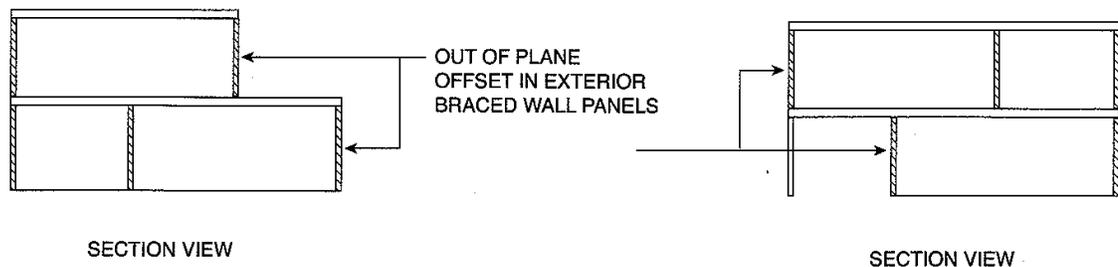


FIGURE 2308.12.6(1)
BRACED WALL PANELS OUT OF PLANE

Exception: Cantilevers or setbacks meeting the restrictions in §2308.12.6 Item 1 Exception.

5.2 Diaphragm not supported on all edges (torsion). Where a portion of a roof or floor is not supported by braced wall lines on all edges (e.g., open-front portion), the structure is considered irregular.

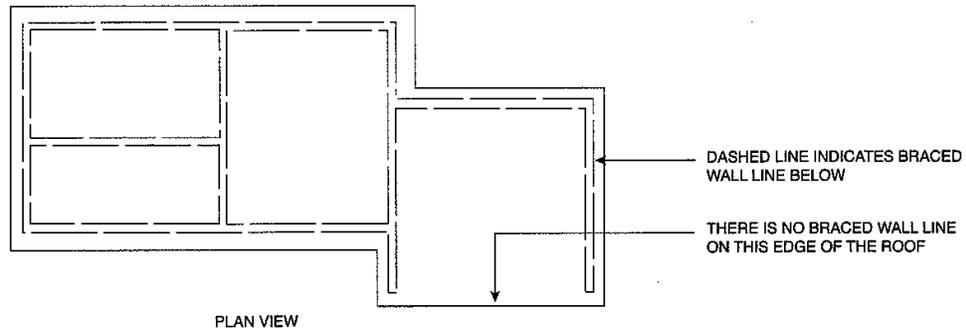


FIGURE 2308.12.6(3)
FLOOR OR ROOF NOT SUPPORTED ON ALL EDGES

Exception: Portions of roofs or floors that do not support braced wall panels above are permitted to extend up to 6' beyond a braced wall line.

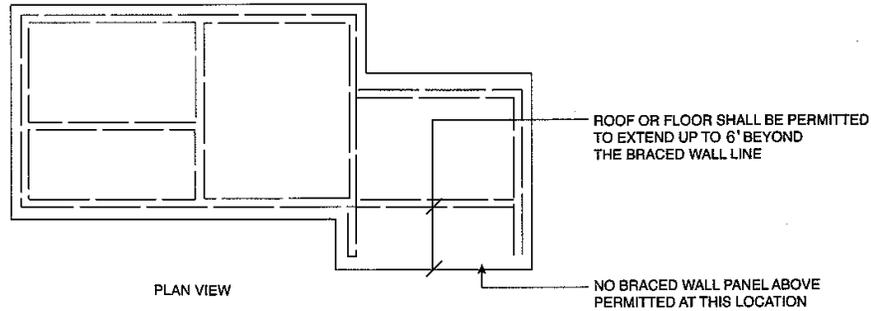


FIGURE 2308.12.6(4)
ROOF OR FLOOR EXTENSION BEYOND BRACED WALL LINE

5.3 In-plane offset. Where the end of a required braced wall panel extends more than 1' over an opening in the wall below (i.e., in-plane offset), the structure is considered irregular.

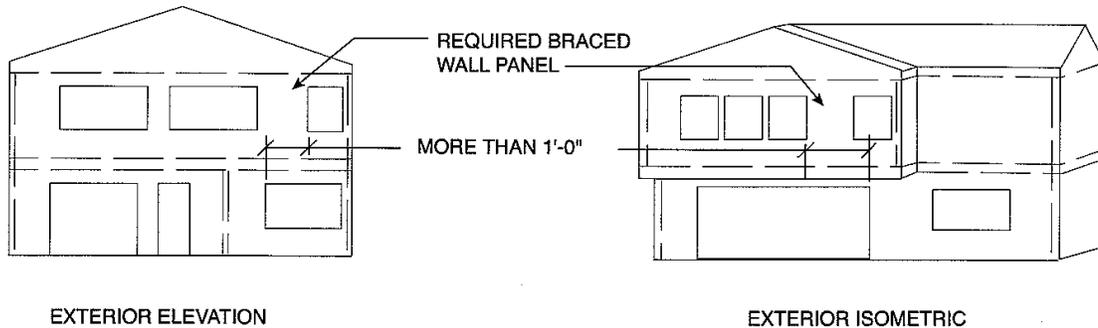


FIGURE 2308.12.6(5)
BRACED WALL PANEL EXTENSION OVER OPENING

Exception: Where a 4x12 or larger header is framed over the opening below a braced wall panel, the panel may extend completely over this header provided the opening is 8' or less.



- 5.4 **Split level.** Where portions of a floor level are offset vertically such that floor joists on either side of the offset cannot be tied directly together (i.e., split-level construction), the structure is considered irregular.

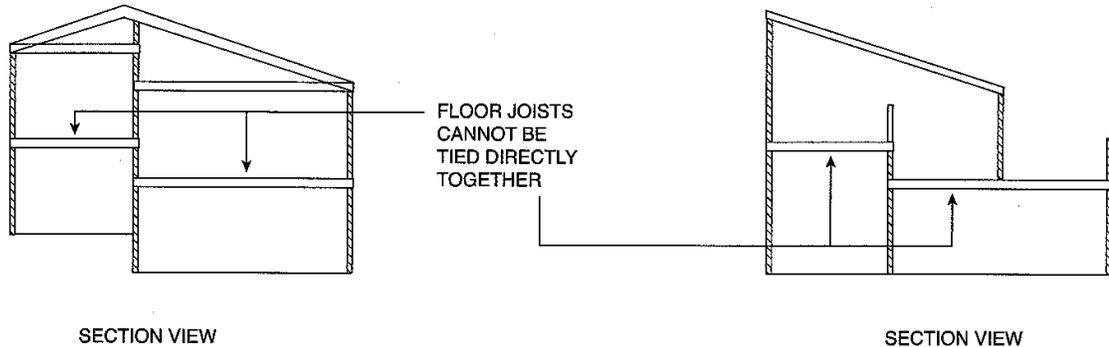


FIGURE 2308.12.6(6)
PORTIONS OF FLOOR LEVEL OFFSET VERTICALLY

- 5.5 **Non-perpendicular braced wall lines.** Where braced wall lines are not perpendicular to each other, the structure is considered irregular.

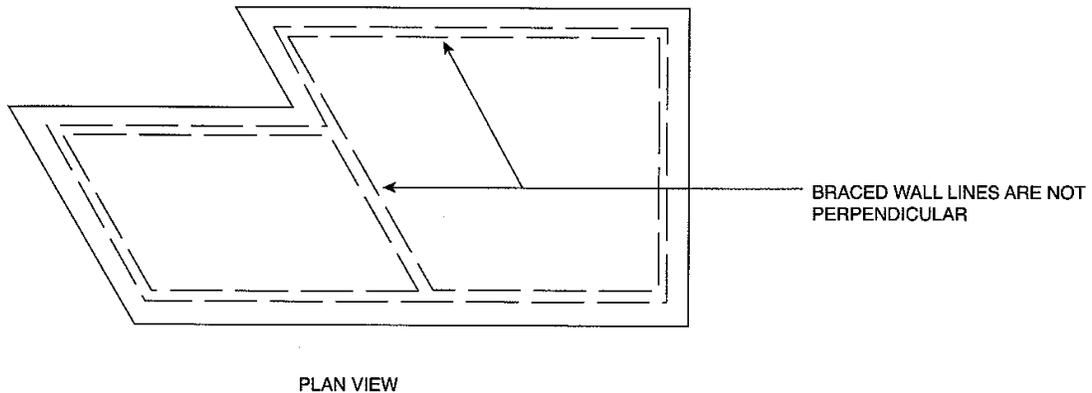


FIGURE 2308.12.6(7)
BRACED WALL LINES NOT PERPENDICULAR

- 5.6 **Diaphragm opening.** Where openings in floor and roof diaphragms have a maximum dimension greater than 50% of the distance between braced wall lines, or have an area greater than 25% of the area bounded by orthogonal pairs of braced wall lines, the structure is considered irregular.



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Issued August 11, 2010

Policy Bulletin No. PB-044

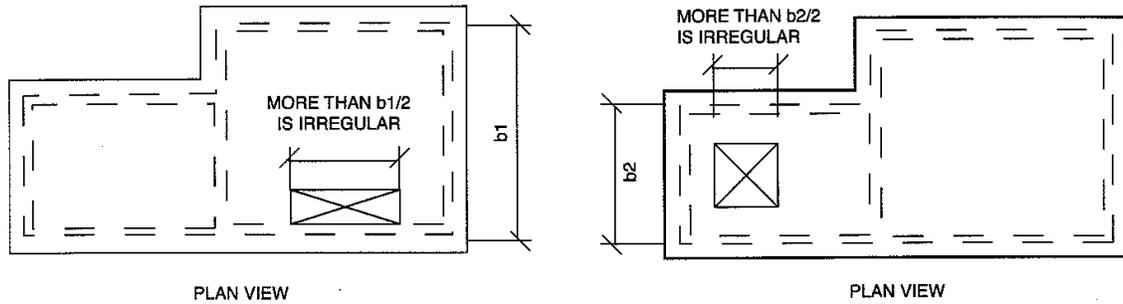


FIGURE 2308.12.6(8)
OPENING LIMITATIONS FOR FLOOR AND ROOF DIAPHRAGMS

Portions exceeding limitations of conventional construction

When portions of a structure of otherwise conventional construction exceed the limitations stated above, an engineered design is required for these portions and the supporting load path. CBC defines “portions” as parts of buildings containing volume and area such as a room or a series of rooms. [§2308.1.1]