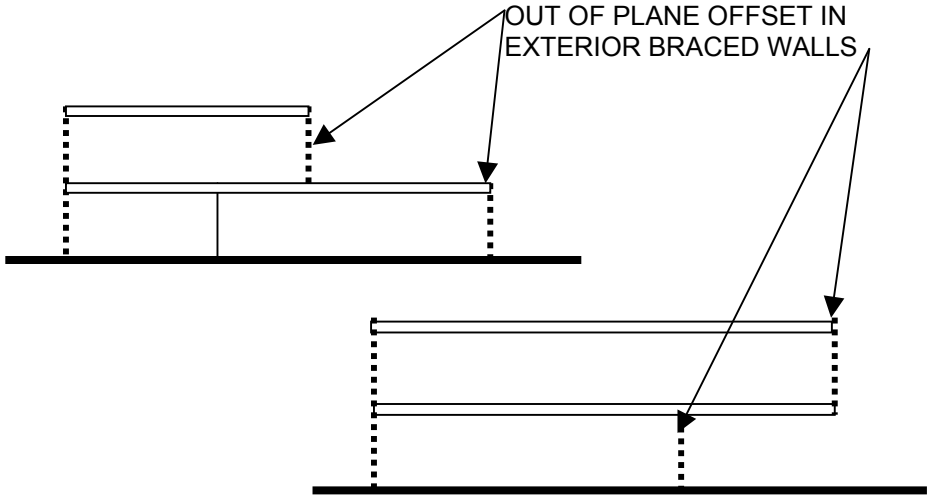
UNUSUAL SHAPED BUILDINGS TRIGGER AN ENGINEERED DESIGN TO RESIST LATERAL FORCES

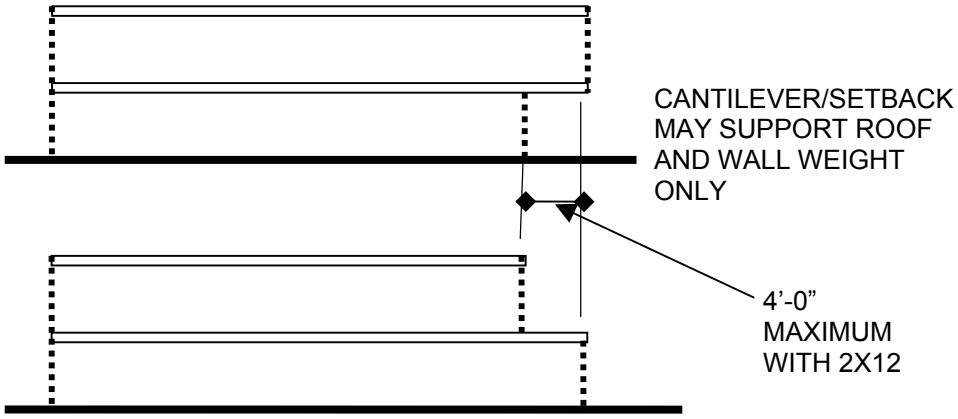
SEC. 2320.5.4.1

When exterior braced wall panels, as required by Sect. 2320.11.3, are not in one plane vertically from the foundation to the uppermost story in which they are required.



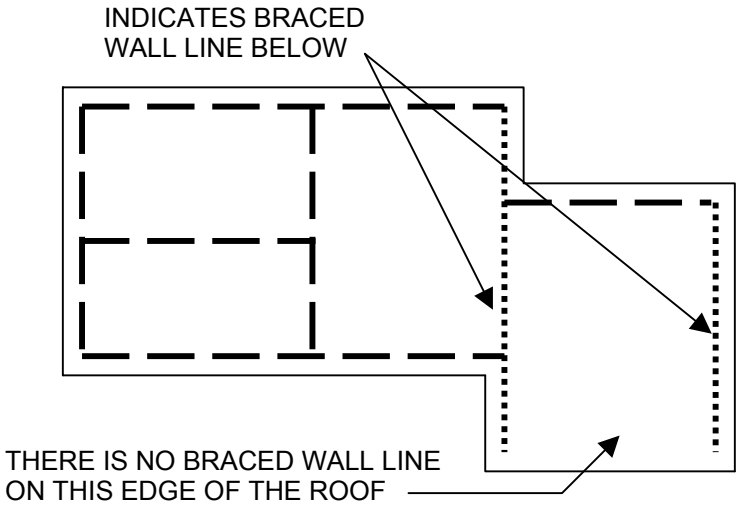
EXCEPTION:
Floors with cantilevers or setbacks not exceeding 4 times the nominal depth of the floor joist may support braced wall panels provided all of the following conditions are met:

1. Floor joists are 2 x 10 or larger and are spaced not more than 16” o.c.
2. The ratio of the back span to the cantilever is at least 2 to 1.
3. Floor joists at the ends of braced wall panels are doubled.
4. A continuous rim joist is connected to the ends of all cantilevered joists. The rim joist may be spliced using a metal tie not less than .058 inch (16 ga. Galvanized and 1 ½” wide, fastened with six 16d nails.
5. Gravity loads carried at the end of cantilevered joists are limited to uniform wall and roof load and the reactions from headers having a span of 8 feet or less.

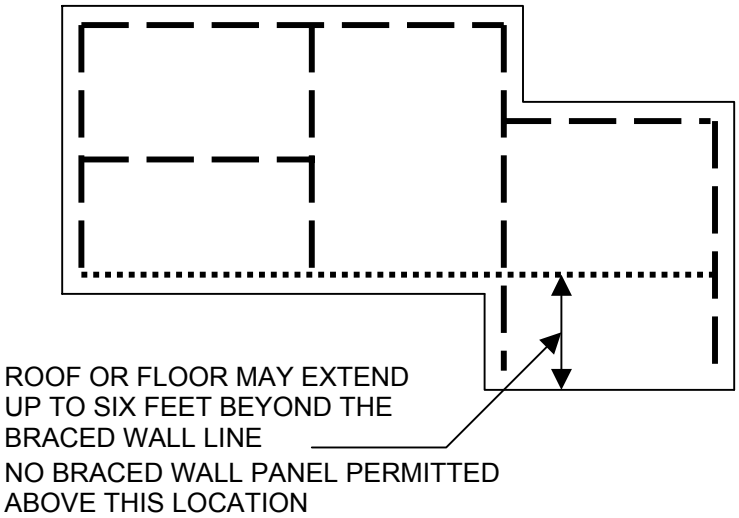


SEC. 2320.5.4.2

When a section of floor or roof is not laterally supported by braced wall lines on all edges.

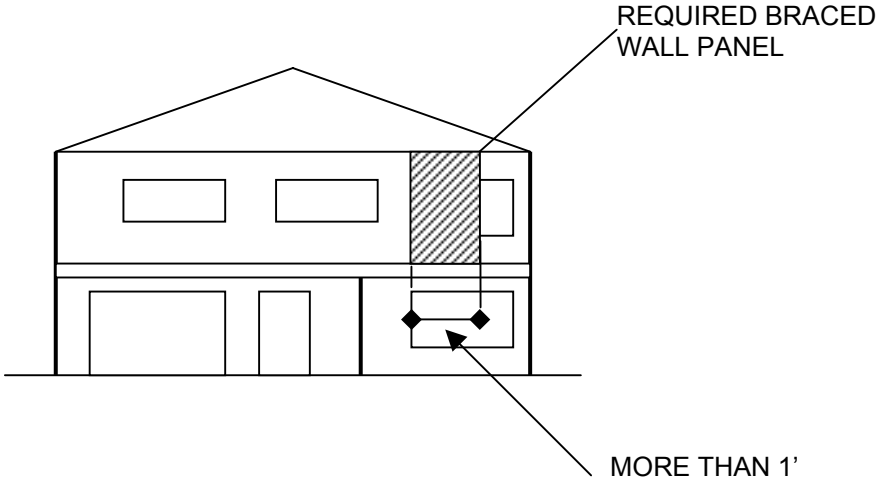


EXCEPTION:
Portions of floors or roofs, which do not support braced wall panels above, may extend up to 6 feet beyond a braced wall line.



EC. 2320.5.4.3

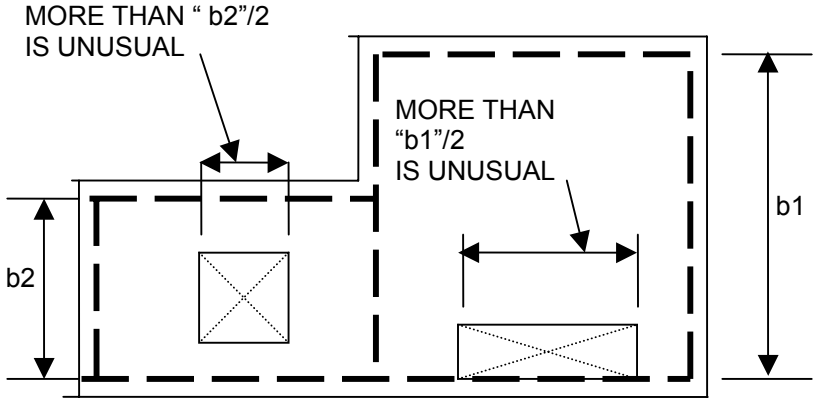
When the end of a required braced wall panel extends more than 1 foot over an opening in the wall below. This provision is applicable to braced wall panels offset in plane and to braced wall panels additionally offset out of plane as permitted by Section 2320.5.4.1 Exception.



Exception:
Braced wall panels may extend over an opening not more
Than 8 feet in width when the header is a 4 x 12 or larger member

SEC 2320.5.4.4

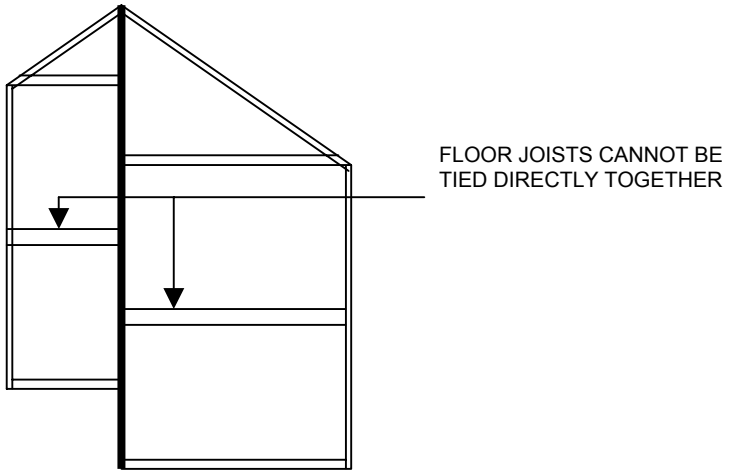
When an opening in a floor or roof exceeds the lesser of 12 feet or 50% of the least floor or roof dimension.



SEC. 2320.5.4.5

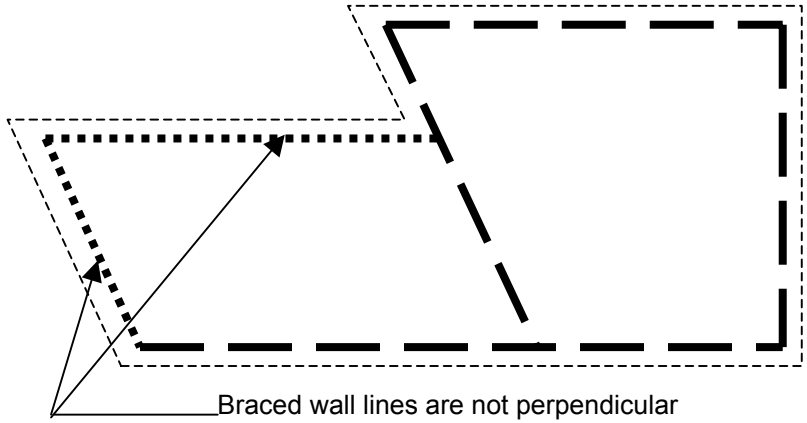
Construction where portions of a floor level are vertically offset such that the framing members on either side of the offset cannot be tied together in an approved manner as required by Sec. 2320.8.3

EXCEPTION:
Framing supported directly by foundations.



SEC. 2320.5.4.6

When braced wall lines do not occur in two perpendicular directions.



BRACED WALL PANELS FOR SEISMIC ZONE 3

NOT ALLOWED IN SEISMIC ZONE 3

1. Wood boards with minimum thickness of 5/8" applied diagonally on studs spaced not over 24" o.c.

2. Wood structural panel sheathing 5/16" thick for 16" stud spacing and 3/8" for 24" stud spacing (UBC Table 23-II-A-1 & 23-IV- D-1.) Use 6d nails at 6" o.c. on all sides and 12" in the field (maximum ½" sheathing).

3. Fiberboard sheathing 4' x 8' panels not less than ½" thick applied vertical on studs not over 16" o.c. Nailing shall be #11 gage galvanized roofing nail 1 ½ " long with 7/16" head or 6d common. All joints shall be blocked when the height exceeds 8'. Nailing shall be at 3" o.c. on all sides and at intermediate studs and blocking.

4. Gypsum board (sheathing, wallboard or veneer base) ½" x 4' x 8' on studs not more than 24" o.c., both sides, nailed at 7" o.c. Horizontal gypsum board unblocked at perimeter shall be nailed at 4" o.c. Nails shall be 5d cooler or wallboard nails for ½" gypboard or veneer base and 6d nails for 5/8" gypboard or veneer base. Sheathing shall be nailed with #11 gage, 1 ¾ " long galv. nails. (UBC Table 25-I) If bracing one side of wall, length shall be 8'.

5. Particleboard may be installed horizontal(with blocking) or vertical with nails spaced at 6" on the perimeter and 12" in the field.

6. Portland cement plaster on studs spaced 16" o.c. with #11 gage x 1 ½" long, 7/16" head; or #16 gage staple, 7/8" leg at 6" o.c.

7. Hardboard panel siding 3/8" thick installed on studs spaced no more than 24" o.c. with 6d nails at 6" o.c. and 12" in the field. Use 8d nails if installed over sheathing.