SIERRA COUNTY
DEPARTMENT OF PLANNING AND BUILDING
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FORM NUMBER

BD-06

SNOW LOAD DESIGN REQUIREMENTS

(REF. Sierra County Code 12.04.100)

12.04.100 Snow Load Requirements

The provisions of CBC Chapter 16 and Section 1608 and CRC Sections R301.2 and R301.2.3 are hereby amended to include the following additional requirements for roof snow load design. The unincorporated area of Sierra County shall be divided into zones, established by climatic and geographic analysis, to determine applicable snow loads for a parcel of property and the zone within which a parcel is located. The location within a zone combined with the elevation of the parcel of property shall be the basis for determining the roof snow load design requirements for any construction project. A cartographic representation of the zones shall be maintained in the office of the County Building Official. The zones hereby established are described as follows:

(a) **Zone I:** All of the area encompassed within the following:
T. 22 N., R. 9 E.; T.22 N., R. 10 E.; T. 21 N., R. 9 E.;
T. 21 N., R. 10 E.; T. 20 N., R. 9 E., M.D.M., excepting
those portions lying outside Sierra County.

(b) **Zone II:** All of the area encompassed within the following:
T. 22 N., R. 11 E.; T. 21 N., R 11 E.; T. 21 N., R 12 E.;
T. 21 N., R. 13 E.; T. 20 N., R 8 E.; T. 20 N., R. 10 E.;
T. 20 N., R 11 E.; T. 20 N., R 12 E.; T.20 N., R 13 E;
T. 19 N., R 8 E.; T 19 N., R. 9E; T 19 N., R. 10 E. ;
T. 19 N., R 11 E. ; T 19 N., R 12 E. ; T. 19 N., R. 13 E. ;
T. 18 N., R. 8 E. ; T. 18 N., R. 9 E. ; T. 18 N., R. 10 E. ;
T. 18 N., R 11 E. ; T. 18 N., R. 13 E. ; M.D.M, excepting
those portions lying outside Sierra County.

(c) **Zone III:** All of the area encompassed within the following:
T. 21 N., R. 14 E.; T. 20 N., R. 14 E.; T. 20 N., R. 15 E.;
T. 19 N., R. 14 E.; T. 18 N., R. 14 E.; M.D.M, excepting
those portions lying outside Sierra County.

(d) **Zone IV:** All of the area encompassed within the following:
T. 20 N., R. 16 E.; T. 19 N., R. 15 E.; T. 19 N., R. 16 E.;
T. 18 N., R. 15 E.; T. 18 N., R. 16 E.; M.D.M, excepting
those portions lying outside Sierra County, and Sections
4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, 33,
T. 20 N., R. 17 E., M.D.M; and Sections 4, 5, 6, 7, 8, 9, 16,
17, 18, 19, 20, 21, 28, 29, 30, 31, 32, 33, T. 19 N., R. 17 E.,
M.D.M; and Sections 4, 5, 6, T. 18 N., R. 17 E., M.D.M,
excepting those lying outside of Sierra County.

(e) **Zone V:** All of the area encompassed within the following:
T. 21 N., R. 15. E.; T. 21 N.; R 16 E.; T. 21 N., R. 17 E.;
T. 21 N., R. 18 E.; T. 20 N., R. 18 E.; T. 19 N., R. 18 E.;
T. 18 N., R. 18 E.; M.D.M, excepting those portions lying outside
Sierra County; and Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24,
25, 26, 27, 34, 35, and 36, T. 20 N., R. 17 E., M.D.M; and Sections
1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, and 36,
T. 19 N., R. 17 E., M.D.M; and Sections 1, 2, 3, T. 18 N., R. 17 E., M.D.M,
Excepting those portions lying outside Sierra County.

The following design criteria are hereby adopted for roof snow loads within the unincorporated areas of Sierra County:

- **The roof snow loads are the snow loads on "<u>flat roofs</u>"** (**NOT ground snow loads**). If desired or required by your engineering software, use ASCE equation 7-1 $P_f = 0.7\ C_e\ C_t\ I\ P_g$ to determine the ground snow load, where the Pf Listed above is based on an exposure factor $C_e = 0.9$, thermal factor $C_t = 1.1$, and importance factor I= 1.0 per ASCE Standard 7-05. The flat roof snow load for each site should have these factors adjusted as appropriate.

- Snow loads may be reduced for sloped roofs in accordance with ASCE Standard 7-05, Section 7.4 providing a minimum of 8 feet of vertical eave height is provided for each 100 pounds of snow load. This minimum eave height is measured from the eave down to either grade or the first obstruction, such as a deck etc., and must be maintained for a minimum distance of 10 feet out from the eave. In areas with snow loads in excess of 100 lbs which do not have a 16 foot or greater eave height, the allowable slope reduction can be pro-rated (i.e. snow loads greater than 100 lb s., eave height of 9 feet; 9/16 of allowable reduction can be taken).

- Snow reduction for sloped roofs shall not be used for structural members affected by valleys, dormers, slope changes, chimney chases or other areas where the snow may be restricted from sliding.

- No roof material shall be considered "slippery" for the purposes of snow reduction for sloped roofs per ASCE Standard 7-05, Section 7.4.

- Uncovered decks, and all similar structures, may be designed for the flat roof snow load as provided herein. Covered, but not fully enclosed decks and all similar structures shall be designed for floor loads from CBC Table 1607.1 or 50% of the flat roof snow load, whichever is greater.

- Roof design snow load may be reduced up to 80% for use in seismic calculations per CBC Section 1605.3.1.

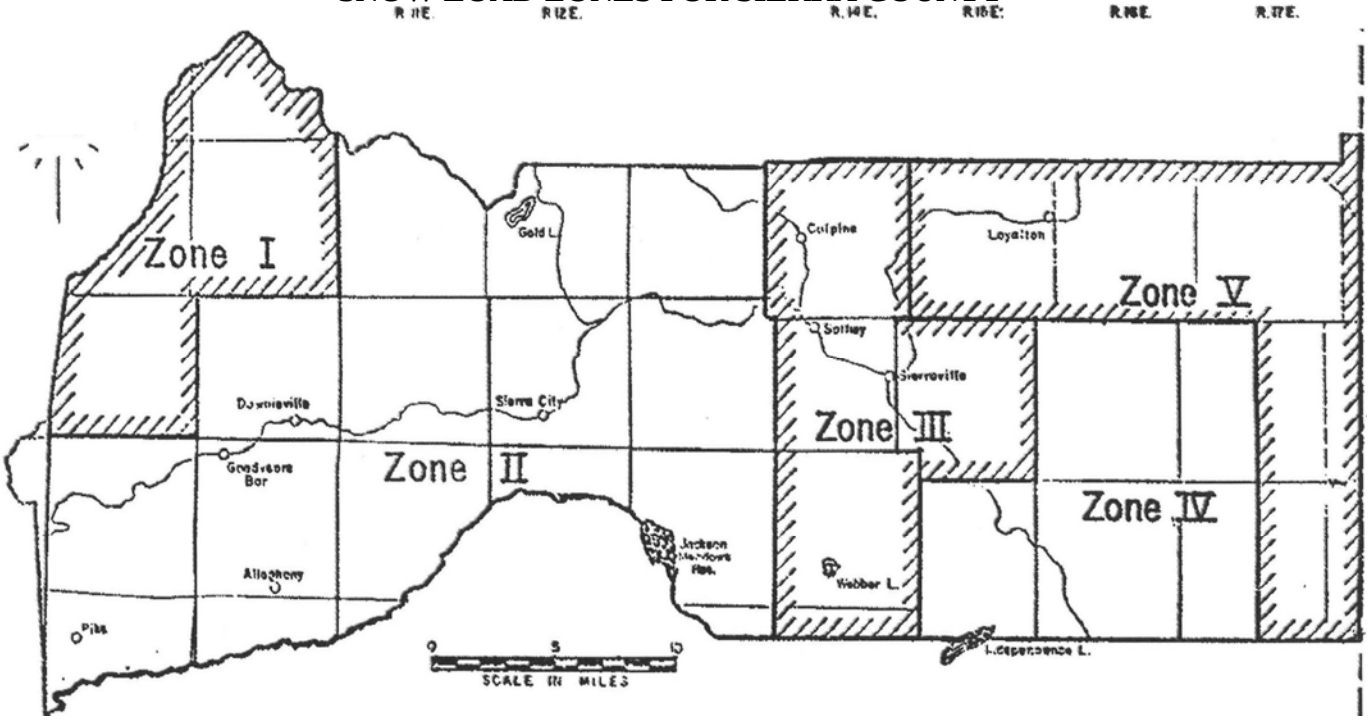
- Conventional light-frame construction is **NOT PERMITTED** in Sierra County per CBC Section 2308.2 (3.3.).

- The provisions of CBC Sections 1507.2.8.2, 1507.5.4, 1507.6.4, 1507.7.4, 1507.8.4, 1507.9.4 and CRC Sections R905.2.7.1, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1 are hereby amended to require additional design and construction requirements for ice barriers. In areas where there has been a history of ice forming along the eaves causing a backup of water as designated CRC Table R301.2(1) (or below the 6200 foot elevation level), an ice barrier that consists of at least two layers of underlayment cemented together or a self adhering polymer modified bitumen sheet shall be used in place of normal underlayment and extend from the lowest edges of all roof surfaces to a point at least 24 inches inside the interior wall line of the building. For areas above the 6200 feet elevation level, a self-adhering polymer modified bitumen sheet shall be used in place of normal underlayment and extend from the lowest edges of all roof surfaces to a point at least 72 inches inside the interior wall line of the building.

- A cricket or saddle-type diverter shall be installed on the ridge side of any chimney, flue or vent that is adjacent to, or penetrates the roof. Crickets or saddle coverings shall be a minimum 24 gauge sheet metal or the same material as the roof covering. Plumbing vents through the barge rafter shall be approved by the building official prior to installation, provided adequate clearances are maintained from windows, vents, combustion air and exhaust.

(Ord. 1037, eff. 2/2/2012; prior 773, 571)

SNOW LOAD ZONES FOR SIERRA COUNTY



SNOW LOAD DESIGN REQUIREMENTS

"Flat Roof" **NOT** Ground snow load---in psf
Ref. ASCE 07-10 Chapter 7

Elevation Range (ft above sea level)	ZONE I	ZONE II	ZONE III	ZONE IV	ZONE V
2000-2500 2501-3000 **3001-3500**	**180**	50 **70**			
3501-4000 **4001-4500** 4501-5000	210 **230** 260	100 **120** 150	70		
5001-5500 5501-6000 **6001-6500**	**290** 310 **340**	**180** 220 **260**	**120** 170 **210**	100 **160**	**70** 90 **110**
6501-7000 **7001-7500**	310 **390**	300 **350**	260 **300**	210 **260**	130 **150**

Over 7500 feet elevation to be determined by the Building Official.

NOTE: For a more precise description of each Zone, as well as locally-adopted design criteria, see: Sierra County Code Section 12.04.100 (Ordinance No. 1037, eff. 2/2/2012; prior 773, 571)