

Chapter 16-04
Rules and Regulations of the
Department of Development and Environmental Services

Structural Loading: Minimum Roof Snow Loads

Effective Date: October 22, 2001

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16-04-500 Purpose. It is the purpose of this rule to implement the provisions of K.C.C. 16.04.05046 or its successor subsection by establishing the roof snow load criteria. The minimum roof snow load in King County is 25 psf as defined in K.C.C. 16.04.05046.

16-04-503 Definitions.

A. Department. "Department" means the Department of Development and Environmental Services of King County.

B. Roof Snow Load. "Roof Snow Load" means the weight of snow that is used for the design of a building or structure.

C. Ground Snow Load. "Ground Snow Load" means the weight of snow on the ground.

16-04-506 Application. A. Ground Snow Load. The ground snow load, P_g , shall be determined in accordance with the following formula:

$$P_g = C_g h_{msl} \quad (506-1)$$

WHERE:

C_g = Ground snow load coefficient determined by interpolating the isolines established in the "King County Ground Snow Load Map." For locations listed in

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Table 16-V (Unincorporated King County Ground Snow Loads) the isoline values in the table shall be used.
 h_{msl} = Site elevation, feet above sea level.

The building official shall have the authority to establish alternate ground snow loads based on station data or site experience.

B. Determining "Roof Snow Loads." Roof snow loads shall be calculated in accordance with one of the following:

1. SEAW, Snow Load Analysis for Washington, Second Edition, provided that the snow exposure factor, C_e , shall be determined from Table 16-W.
2. UBC 1997 Vol. II, Appendix Chapter 16 Division I, provided that the snow exposure factor, C_e , shall be determined from Table 16-W.
3. ASCE 7-98 Section 7.

For buildings and other structures with a site elevation not greater than 1000 feet, it shall be permitted to determine the roof snow load (P_f) in accordance with the following formula:

$$P_f = C_e I P_g \quad (506-2)$$

WHERE:

P_g = Ground snow load in accordance with K.C.C. 16.04.506 paragraph A.

I = Occupancy Importance Factor in accordance with Table 16-X.

C_e = Snow Exposure Factor in accordance with Table 16-W.

For all buildings and structures in King County, the roof snow load shall not be less than 25 psf.

C. Drift snow load and sliding snow load shall be considered for:

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1. Buildings and other structures in Occupancy Category 1-Essential Facilities. See UBC 1997, Table 16-K.
2. Buildings in Occupancy Group A with an occupant load of 300 or more in one room.
3. Buildings and other structures with a site elevation greater than 1000 feet.
4. Buildings and other structures with an unusual roof configuration that may result in substantial snow drift loads.

D. Roof snow loads shall be included in the seismic analysis as follows:

1. For roof snow loads not greater than 30 psf, the seismic gravity load, W , need not include the roof snow load.
2. For roof snow loads between 30 and 100 psf, the seismic gravity load, W , shall include not less than 25% of the roof snow load.
3. For roof snow loads greater than or equal to 100 psf, the seismic gravity load, W , shall include not less than 30% of the roof snow load.

The building official shall have the authority to make final determination of snow loads by considering site location, roof configuration, and occupancy.

TABLE 16-V: (Unincorporated King County Ground Snow Loads)

LOCATION	ISOLINE VALUE
Auburn	0.05
Bellevue	0.05
Bothell	0.05
Black Diamond	0.05
Carnation	0.057
Duvall	0.056
Enumclaw	0.05
Fall City	0.073
Issaquah	0.054
Kent	0.05
Kirkland	0.05
Lester	0.072

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North Bend	0.075
Palmer	0.063
Renton	0.05
Seattle	0.05
Skykomish	0.094
Snoqualamie Pass	0.144
Stevens Pass Ski Area	0.10
Vashon Island	0.05

TABLE 16-W: Snow Exposure Coefficient (C_e)

1. Building located in generally open terrain and with roof slopes of 3 units vertical in 12 units horizontal (25% slope) or greater.	0.8
2. All other structures.	1.0

TABLE 16-X: Values for Occupancy Importance Factor I

Type of Occupancy	I
	SNOW
1. Essential facilities.	1.15
2. Any building where the primary occupancy is for assembly use for more than 300 persons (in one room).	1.15
3. Agricultural buildings, production greenhouses and other miscellaneous structures.	0.9
4. All others.	1.0

16-04-509 Severability. If a provision of the rules contained herein or its applicability to any person or circumstance is held invalid, the remainder of the provisions of these rules or the application of the provision to other persons or circumstances shall not be affected.