Roof Snow Load from Ground Snow and Roof Factors

Roof snow load from ground snow load and shape, exposure and thermal factors, with the load on the sloping roof surface and the total on a roof area.

Method: Roof snow load from ground snow with shape; exposure and thermal factors; ...

Input parameters

Unit system: SI

Parameter	Value	Unit
Ground snow load	1.5000	kPa
Roof shape coefficient	0.80000	
Exposure factor	1.0000	
Thermal factor	1.0000	
Roof slope	20.002	°
Roof plan area	200.00	m²

Calculated results

Parameter	Value	Unit
Snow load on plan area	1.2000	kPa
Snow load per m² of roof surface	1.1276	kPa
Total snow load on the roof	240.00	kN

Notes for this case

- s = μ·C_e·C_t·s_g on the horizontal projection. Shape coefficients fall on steep roofs and rise for drifts at steps, parapets and valleys; take ground snow and the factors from your national code.

Formula and method

$$s = \mu C_e C_t s_g, \quad s_\alpha = s\cos\alpha, \quad F = sA_p$$

Variables

s_g	Ground snow load	Pa
μ	Roof shape coefficient	-
C_e	Exposure factor	-
C_t	Thermal factor	-
α	Roof slope	rad
A_p	Roof plan area	m²
s	Snow load on plan area	Pa
s_α	Snow load per m² of roof surface	Pa
F	Total snow load on the roof	N

Method and standards

Snow load.

Assumptions and limits

- Uniform snow; no drift.

References

Roof snow load from ground snow with shape, exposure and thermal factors, Practice common to national snow load codes

Report details

Report reference	FCC-77XR-AE5D (the same inputs always give the same reference)
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Calculator	Roof Snow Load from Ground Snow and Roof Factors
Method last reviewed	17 November 2026
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Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/civil/steel/roof-snow-load

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.