



# Structural Design Information

## 2021 International Residential Code (IRC)

Homes and accessory buildings may be constructed per IRC prescriptive design requirements for sites where ground snow loads do not exceed 70 psf and where Ultimate Design Wind Speeds are less than 140 mph. Designs for sites exceeding these limits may instead use the International Building Code (2021 IBC), ASCE Minimum Design Loads for Buildings and Other Structures (ASCE 7-16), AWC Wood Frame Construction Manual (WFCM-2018), AISI Standard for Cold-Formed Steel Framing - Prescriptive Method for One- and Two-Family Dwellings (AISI S230-2019), ICC Standard on the Design and Construction of Log Structures (ICC 400-17), or ICC Standard for Residential Construction in High-Wind Regions (ICC 600-2020). Loafing sheds and pole barns may be constructed per Larimer County Prescriptive Design Standards. See below for design values.

## 2021 International Building Code (IBC)

### 1608.2 Ground Snow Loads.

The design ground snow load shall comply with the Colorado Design Snow Loads Report and Map, published by the Structural Engineers Association of Colorado (dated May 6, 2015) or the table below. The design roof snow load values shall be determined from Section 1608 of the IBC, including all applicable factors, and loading and drifting considerations of ASCE 7, Chapter 7, but in no case shall the final design roof snow load be less than a uniformly distributed load of 30 psf.

Ground Elevation does not exceed (feet)	Ground Snow Load $P_g$ (psf)
5,000	35
6,000	45
6,500	50
7,000	60
8,000	70
9,000	100
10,000	140

Ground values shall be above.

### Snow Load Table Notes:

snow load ( $p_g$ ) may be linearly interpolated between tabulated. For ground elevations above 10,000 feet, the ground snow load ( $P_g$ ) determined from the SEAC Snow Loads Report and Map noted

### 1609 Wind Loads

Minimum Basic Wind Speeds\* ( $V$ ) vary between 115 and 225 mph. Wind exposure category shall be Exposure C, unless designated otherwise by the design professional based on site-specific conditions and approved by the Building Official. Basic Wind Speed for a project shall comply with the Colorado Front Range Gust Map – ASCE 7-10 Compatible, published by the Structural Engineers Association of Colorado (dated 11/18/13) or the Larimer County Basic Wind Speed Map. See Larimer County's [interactive winds map](#) for wind speeds, snow loads and other site design criteria.

### 1611. 1 Design Rain Loads

The design rainfall shall be based on the 100-year 15-minute duration event, or on other rainfall rates determined from approved local weather data. Alternatively, a design rainfall of twice the 100-year hourly rainfall rate indicated in Figures 1611.1(1) through 1611.1(5) shall be permitted.

### 1612 Flood Loads.

Building construction within food hazard areas shall comply with the requirements of the Larimer County Land Use Code.

### 1613 Earthquake Loads.

Except as noted below, seismic design values shall be determined from Section 1613 of the IBC. Site-specific seismic design values shall be determined from <https://earthquake.usgs.gov/hazards/designmaps/>

For Risk categories I & II, the following values may be used for design:

- 0.2 second spectral response acceleration  $S_s = 0.229g$ , Site Class D, Seismic Design Category B
- 1.0 second spectral response acceleration  $S_1 = 0.068g$ , Site Class D, Seismic Design Category B

### 1614.1 Atmospheric Ice Loads.

Ice-sensitive structures like towers shall be designed for minimum 1/2" atmospheric ice loads.

### 1809.5 Frost protection.

Minimum frost depth is 30 inches below grade countywide.

\*Basic Wind Speed is called Ultimate Design Wind Speed ( $V_{ult}$ ) in the 2021 IRC and in prior editions of the IBC.