



RESIDENTIAL DESIGN VALUES

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Prescriptive Design

International Residential Code (IRC) – Limitations: Buildings designed under International Residential Code provisions are limited to 1 and 2 family dwellings as well as multiple single-family dwellings (townhouses) not more than 3 stories in height.

IRC Table R301.2(1): Prescriptive design values are determined as required by climatic and geographical design criteria based upon local conditions and established in IRC Table R301.2(1).

**TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA
City of Auburn**

| GROUND SNOW LOAD ^a | WIND SPEED (mph) | SEISMIC DESIGN CATEGORY | SUBJECT TO DAMAGE FROM | | | | WINTER DESIGN TEMP | ICE SHIELD UNDER-LAYMENT REQUIRED | FLOOD HAZARDS | AIR FREEZING INDEX | MEAN ANNUAL TEMP |
|-------------------------------|------------------|-------------------------|------------------------|------------------|--------------------|--------------------|--------------------|-----------------------------------|---------------|--------------------|------------------|
| | | | Weathering | Frost line depth | Termite | Decay | | | | | |
| 25 | 110 | D2 | MODERATE | 12" | Slight to Moderate | Slight to Moderate | 26 | NO | FIRM 2020 | 148 | 51.5 |

^aElevations above 500' will have an assigned snow load of 30 pounds per square foot.

Engineering Design

Design of portions- When a building of otherwise conventional construction contains structural elements exceeding the limits of IRC Section R301 or otherwise, not conforming to this code, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of non-conventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. Engineered design in accordance with the *International Building Code* is permitted for all buildings and structures, and parts thereof, included in the scope of this code.

Engineering design criteria- Please refer to the Auburn Design Values handout for engineered design values on our website: [https://www.auburnwa.gov/UserFiles/Servers/Server_11470554/File/City_Hall/Community_Development/Permits Licenses and Inspections/Commercial Building Application Checklist.pdf](https://www.auburnwa.gov/UserFiles/Servers/Server_11470554/File/City_Hall/Community_Development/Permits_Licenses_and_Inspections/Commercial_Building_Application_Checklist.pdf)

Soil Tests

Local conditions: The City of Auburn has significantly distinct soils profiles. As an example, the soils in the valley floor (1000 lbs./sf) will rarely meet prescriptive load-bearing requirements while the areas above the valley will usually exceed prescriptive requirements.

When required: In areas likely to have expansive, compressible, shifting or other unknown soil characteristics, the building official shall determine whether to require a soil test to determine the soils characteristics at a particular location. This test shall be made by an agency approved by the City of Auburn.

Geotechnical Evaluation: In lieu of a complete geotechnical evaluation, the load-bearing values of IRC Table R401.4.1 shall be assumed.

**TABLE R401.4.1
PRESUMPTIVE LOAD-BEARING VALUES OF
FOUNDATION MATERIALS^a**

| CLASS OF MATERIAL | LOAD-BEARING PRESSURE (pounds per square foot) |
|--|---|
| Crystalline bedrock | 12,000 |
| Sedimentary and foliated rock | 4,000 |
| Sandy gravel and/or gravel (GW and GP) | 3,000 |
| Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC) | 2,000 |
| Clay, sandy clay, silty clay, clayey silt, silt and sandy silt (CL, ML, MH and CH) | 1,500 ^b |

For SI: 1 pound per square foot = 0.0479 kN/m²

- a. When soil tests are required by Section R401.4, the allowable bearing capacities of the soil shall be part of the recommendations.
- b. When the building official determines that in-place soils with an allowable bearing capacity of less than 1,500 psf are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigation.