



# DESIGN CRITERIA

*Building Services - Permits*  
451 South State Street, Room 215  
Salt Lake City, Utah 84111  
Phone: (801) 535-6000

Salt Lake City Corporation – Building Services, uses the following design criteria when reviewing a project or development within the corporate limits of Salt Lake City.

1. **BUILDING CODES:** Building Services enforces the following building codes with State amendments.
  - 2018 International Building Code (*including Appendix J*)
  - 2015 International Residential Code (*including Appendix Q of the 2018 IRC*)
  - 2018 International Plumbing Code
  - 2018 International Mechanical Code
  - 2018 International Fuel Gas Code
  - 2015 International Energy Conservation Code (*residential provisions*)
  - 2018 International Energy Conservation Code (*commercial provisions*)
  - 2018 International Existing Building Code
  - 2018 International Fire Code
  - 2017 National Electric Code
  - 1997 Uniform Code for Abatement of Dangerous Buildings
  
2. **SNOW LOADS:**
  - a) **Ground Snow Loads:** The actual snow loads vary depending upon elevation. For all projects located at, or below, 4,239 feet mean sea level the ground snow load ( $P_f$ ) shall be a minimum of 28 pounds per square foot. For elevations above 4,239 feet mean sea level please visit <https://utahsnowload.usu.edu> as referenced in Section 15A of Utah’s “State Construction and Fire Codes Act”.
  - b) **Roof Snow Loads:** Shall be determined per Chapter 7 of ASCE 7-16.
  - c) **Seismic Snow:** At locations where the roof snow load exceeds 30psf a percentage of the snow load must be considered in the effective seismic weight of the structure per Section 15A-3-107 of Utah’s “State Construction and Fire Codes Act”.
  
3. **WIND:**
  - a) **Speed:** All wind speeds listed below are 3-second gust at 33 feet above the ground.
    - Residential: 115 mph
    - Commercial (see IBC Figures 1609.3(1-4):
      - Risk Category I = 100 mph
      - Risk Category II = 105 mph
      - Risk Category III = 110 mph
      - Risk Category IV = 115 mph
  - b) **Exposure:** Site specific (per Chapter 26 of ASCE 7-16). Typically “B” or “C”.



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## 4. SEISMIC:

### a) Seismic Design Category:

- Residential: D2
- Commercial: D

b) **Site-specific:** Because ground motions tend to vary substantially throughout the city, the mapped spectral accelerations ( $S_s$  &  $S_1$ ) should be obtained by considering the site-specific address or latitude and longitude values and obtaining the ground motions from the Applied Technology Council's "ATC Hazards by Location" tool (<https://hazards.atcouncil.org/>).

### c) Site-Specific Parameters (unless ASCE 7 exceptions are met):

- $S_1 \geq 0.2g$  and Site Class 'D or E' → A ground motion hazard analysis (GMHA) must be provided
- $S_s \geq 1.0g$  and Site Class 'E' → A ground motion hazard analysis (GMHA) must be provided.
- Site Class 'F' → A site response analysis (SRA) must be provided.

## 5. SOILS:

a) **Frost Depth:** 30 inches.

b) **Site Class:** Site specific. For projects not requiring a geotechnical report (*see below*) Site Class 'D' can be assumed per Section 20.1 of ASCE 7-16 but ground motions must be adjusted per IBC 1613.2.3.

### c) Allowable Bearing Pressures:

- Foundation pressure: 1,500psf, per IRC Table R401.4.1 and IBC Table 1806.2.
- Lateral pressure: 100psf/f, per IBC Table 1806.2.
- The above listed values are maximum allowable values unless listed otherwise by a site-specific geotechnical report complying with IBC 1803.6 and IBC 1803.5.5, as applicable.

### d) Site-specific Geotechnical Report:

- General: All geotechnical reports submitted for permit issuance must be dated no later than two years from the permit application date. Outdated reports must be accompanied by a letter from a qualified geotechnical engineer stating that the report requirements are still valid or stating what items may have changed.
- Residential: Residential projects meeting one or more of the following requirements must provide a site-specific geotechnical report meeting the requirements of IBC 1803.6:
  - Where the building footprint is greater than 3,000 square feet, or has a gross square footage of 6,000 square feet or greater; or
  - Where the grade supporting the structure has a slope equal to or greater than 20 percent; or
  - Where the building is to be built on a lot in which a previous structure once existed.
- Commercial: All commercial projects require a site-specific soils report meeting the requirements of IBC 1803.6 and IBC 1803.5.5, as applicable. Additions to existing facilities of less than 3,000 square feet are exempt from this requirement.



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## 6. FLOOD HAZARDS:

### a) Flood Hazard Areas:

- Residential: Buildings and structures located in flood hazard areas (i.e. Flood Zones A or V) must comply with IRC R322.
- Commercial: Buildings and structures located in flood hazard areas must comply with IBC 1612, Chapter 5 of ASCE 7-16 and ASCE 24-14.

### b) Floodways: Buildings and structures located in identified floodways must be designed and constructed in accordance with ASCE 24-14.

### c) Interactive Flood Zone Map: Available at the following web link...

<https://www.arcgis.com/apps/webappviewer/index.html?id=03d70bc5fecc4278b4a747added399a9>

7. **RAINFALL:** Average annual rainfall is 16 inches.

8. **CLIMATE ZONE:** 5B

9. **WEATHERING:** Severe

10. **TERMITE:** None to Slight

11. **WINTER DESIGN TEMP:** 8°F

12. **ICE SHIELD UNDERLAYMENT:** Yes

13. **AIR FREEZING INDEX:**  $\leq 1500$

14. **MEAN ANNUAL TEMP:** 45°F

*Last Revised: 09/2019*