



# MODIFICATION REQUESTS FOR FOUNDATION AND SOILS INVESTIGATIONS

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## PURPOSE

The 2022 California Building Code Section 1803.2 and the 2022 California Residential Code Section R401.4 establish requirements for foundation and soils investigations. These investigation reports are generally required for all structures located in Cupertino. This policy gives a general overview of these requirements and how to submit requests for waiver of these requirements for simple structures.

## GENERAL REQUIREMENTS

**Scope of Investigations:** Geotechnical investigations must include an evaluation of the following potential hazards from earthquake motions: slope instability, liquefaction and soil strength loss, differential settlement, reduction in soil-bearing capacity and surface rupture due to faulting or lateral spreading.

**Qualifications for Persons Preparing Reports:** A State of California registered Geotechnical Engineer or registered Civil Engineer with the appropriate experience and training is required to create, seal and sign the report on the results of the investigation and soil classification.

**Contents of the Report:** The Geotechnical investigation reports shall be comprehensive and shall include the investigation of the following:

- A. A plot showing the location of soil investigations.
- B. A complete record of the soil boring and penetration test logs and soil samples.
- C. A record of the soil profile.
- D. Site Class based on the site soil properties in accordance with Chapter 20 of ASCE 7.
- E. Elevation of the water table, if encountered.
- F. Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement and varying soil strength; and the effects of adjacent loads.
- G. Expected total and differential settlement.
- H. Deep foundation information in accordance with Section 1803.5.5.
- I. Special design and construction provisions for foundations of structures founded on expansive soils, as necessary.
- J. Compacted fill material properties and testing in accordance with Section 1803.5.8.
- K. Controlled low-strength material properties and testing in accordance with Section 1803.5.9.

## MODIFICATIONS TO INVESTIGATION AND REPORT REQUIREMENTS

**Exception to Site Specific Report:** Per 2022 CBC Section 1803.2 and 2022 CRC Section R401.4.1.1.1, the Building Official is permitted to waive the requirement for a geotechnical investigation where soils conditions are known based on reports of prior investigations of nearby sites for similar types of construction that demonstrates an investigation is not necessary for any of the conditions set forth in Sections 1803.5.1 through 1803.5.6 and Section 1803.5.10 and 1803.5.11.

**Code Modification Request:** If no known reports of nearby sites are available, upon written request from the designer of record (or Soils Engineer), the Building Official may consider requests for modification of requirements when special individual reasons exist that make the application of these requirements impractical. These requests may be granted when supporting facts demonstrate that granting of such request will not lessen any degree of structural integrity, durability, strength and seismic safety. The extent of the change in requirements will be based on the strength of the supporting facts.

The person responsible for the foundation design must submit the request for modification in a letter format with the following minimum information:

1. Plot plan showing location of proposed and existing structures and existing natural grade contours.
2. Use, floor area, number of stories and height of existing and proposed structures.
3. Determination of maximum design loads for proposed footing and retaining walls.
4. Visual observation report of performance and condition of any existing structures on site with description of the structure size, foundation structure and loading.
5. Soil classification.
6. Observations from site visit on potential for differential settlement, slope instability, expansive soils, lateral spreading, liquefaction and presence of fill materials.
7. Estimated costs of construction and related foundation and soils investigation report.
8. A statement that a foundation inspection will be performed by the designer of record (or Soils Engineer) to verify the site conditions are consistent with soils conditions as noted in the letter.

When a site specific foundation and soils investigation is exempted, the building and foundation systems shall comply with the following general guidelines on the basis of their location:

- The exemption applies only in non-hillside areas and not located within a geological hazard zone where expansive soils, compressible soils, shifting soils or other questionable soil characteristics are not present.
  - The maximum allowable foundation pressure shall not exceed 1500 psf.
  - The minimum depth of footing shall be 18 inches below the undisturbed ground surface and minimum depth of interior footings shall be 12 inches below ground surface.
  - For additions, the new foundation type shall be compatible with the existing foundation.
  - The maximum allowable lateral bearing pressure shall not exceed 100 psf/ft.
  - Allowable sliding resistance = 130 psf x footing soil contact area but not to exceed 0.5 x dead load on the footing.
  - Specified compressive strength of concrete shall not be less than 2500 psi.
  - Site slope not to be steeper than one unit vertical in three unit horizontal (33.3%).
- (Note: A site-specific study may still be required by the Chief Building Official.)*

Exemption from the foundation and soils investigation requirements shall not be deemed to grant authorization for any work to be performed in any manner in violation of the requirements set forth in the California Building Code or California Residential Code.

### **Examples of Work That May Not Require a Soils Investigation Report:**

1. Residential Additions/Remodels: One-story additions that are 750 s.f. or less on level and undisturbed grade or second-story additions 750 s.f. or less; and non-structural remodels.
2. Detached Residential Accessory Structures: Detached residential accessory structures, such as ADU's, garages, carports, recreation rooms, storerooms, workshops, stables, barns, playhouses, patio structures, gazebos, trellis, equipment sheds, animal enclosures and similar structures not exceeding 750 square feet in area.
3. Non-Habitable Accessory Structures: Miscellaneous structures such as ground-supported cantilever fences not exceeding 8 feet in height, decks no greater than 4 feet above grade at any point, retaining walls which retain no more than 4 feet level backfill, ground mounted photovoltaic systems, and other similar structures.