

SOILS REPORT REQUIREMENTS

PURPOSE

To provide a guideline for requiring a soil investigation report for detached one- and two-family dwelling projects being submitted for plan review.

POLICY

1. New one story, one or two family dwellings with a floor area of 4,000 square feet or less do not require a soil investigation report. However, the foundation shall be designed to meet the minimum liquefaction mitigation measures listed below.
2. New one story, one or two family dwellings with a floor area of more than 4,000 square feet requires a geotechnical investigation report that includes evaluation of the effects of liquefaction and recommended mitigation measures.
3. One story additions with a floor area of 500 square feet or less do not require a soil investigation report and need only to comply with the conventional foundation construction provisions of the California Residential Code.
4. One story additions with a floor area of more than 500 square feet do not require a soil investigation report. However, the foundation shall be designed to meet the minimum liquefaction mitigation measures listed below.
5. New two story, one or two family dwelling projects require geotechnical investigation report that includes evaluation of the effects of liquefaction and recommended mitigation measures.
6. Second floor additions and/or alterations which do not exceed either 50 percent of the value of the structure or 50 percent of the existing floor area of the structure do not require a soil investigation report. However, the foundation shall be designed to meet the minimum liquefaction mitigation measures listed below.
7. Second floor additions and/or alterations which exceed 50 percent of the value of the structure and 50 percent of the existing floor area of the structure are required to have a geotechnical investigation report that includes evaluation of the effects of liquefaction and recommended mitigation measures.
8. New one and two story, one or two family dwelling projects and additions adjacent to a new or existing swimming pool require geotechnical investigation report that includes evaluation of the effects of liquefaction and recommended mitigation measures.
9. New one or two family dwelling projects that are part of multiple building project require a geotechnical investigation report that includes evaluation of the effects of liquefaction and recommended mitigation measures.

MINIMUM LIQUEFACTION MITIGATION MEASURES

1. Concrete slab shall be a minimum of 4 inches thick.
2. Slab shall be reinforced with #4 bars at 18 inches on center each way.
3. Slab reinforcement shall be doweled a minimum of 6 inches into the footing.
4. Continuous footings shall be provided with a minimum of 2-#4 top and bottom bars.
5. Footings shall be embedded a minimum of 18 inches into approved competent materials.
6. Footings shall be designed for a maximum allowable soil pressure of 1,500 psf.

ANALYSIS

- 2016 California Building Code Sections 1803.5.11 and 1803.5.12 require a geotechnical investigation for all structures assigned to Seismic Design Category C, D, E, or F. Reports must include, among other things, evaluation of the effects of liquefaction and recommended mitigation measures.
- Seismic Hazard Zone Mapping Act stipulates that cities and counties, prior to the approval of a “project” located in seismic hazard zone, require a geotechnical report defining and delineating any seismic hazard.
- A “project” is defined as follows:
 - A single family dwelling otherwise qualifying as a “project” may be exempted by the City.
 - “Project” does not include alterations or additions to any structure within a seismic hazard zone which do not exceed either 50 percent of the value of the structure or 50 percent of the existing floor area of the structure.
- Requiring a soils report for minor projects would create an unreasonable financial hardship to the homeowner.
- Soils report previously submitted for a one story dwelling does not include recommendation that is over and above the conventional construction requirements in the 2016 California Residential Code.
- Building Officials are permitted to waive requirements for a geotechnical investigation where satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary.
- To mitigate seismic hazards for minor projects, in the absence of a soils report, the City will require deeper footings, thicker slab, heavier reinforcements for footings and slabs, sufficient dowels for footings and slabs, and a maximum design bearing pressure of 1,500 psf.

APPROVED

David Dent, CBO, CASp