



**RESIDENTIAL CODE MANUAL
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
BUILDING AND SAFETY DIVISION
Based on the 2017 LACRC**

**No. 1004
R401.4
Article 3
03-02-2017
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POLICY ON FOUNDATIONS ON COLLAPSIBLE SOILS

ISSUE

Collapsible soils, also known as soils susceptible to hydroconsolidation, are geologically young, unconsolidated, low-density, loose, dry soils commonly present in arid to semi-arid regions. These soils generally occur within the top 10- to 15-feet of wind deposited sands or silts (loess), alluvial fans, colluvial soils, stream banks, or residual mudflow soils. Collapsible soils have granular particles that are supported by clay or silt and can be chemically cemented in place creating a porous structure. The bonds supporting this porous structure generally has enough shear strength to support loads; however, once water is introduced the porous structure collapses and the granular particles are rearranged. Soils susceptible to hydroconsolidation within the County of Los Angeles are generally found in the Antelope Valley and some areas of the Santa Clarita Valley.

Foundation systems on collapsible soils condition shall be constructed in a manner that will minimize damage to the structure caused by hydroconsolidation settlements. The effects of collapsible soils are usually evidenced in the form of cracks in perimeter footings, separation between footing and slab, cracks in slabs, and minor stucco cracks.

POLICY

Section R401.4 of the 2017 County of Los Angeles Residential Code requires collapsing soils, categorized as "questionable soil" condition to provide a soil test (soil investigation) to determine the soil's characteristics at a particular location where limited data is available. This requirement will minimize possible damage to buildings built on collapsible soil.

When a building plan checker determines that a project site is in a Category 1 (hydroconsolidation) zone based on the Agricultural Map by U.S. Geological Survey Book, the construction of a new, addition, or alteration of a building involving new foundations on collapsible soils shall comply with either options 1, 2, or 3 as indicated below. A note shall also be added in this regard to the building permit application.

Category 1 shall consist of the following soil symbols – AaE, AcA, AdE, AnE, ApF, CyA, CyC, GoD, GoD2, GoE2, GoF2, GsA, GsC, GsC2, GsD2, HaS2, HbA, HbC, HbD, HcA, HcC, HeC, HgA, HgA2, HgB, HkA, HkB, HmA, HnA, LeF, Me, OaC, ObA, ObC, OcC, OdA, OdC, RcA, RcB, RcC, RcD, RdE2, Rm, Rm2, Ra, Rp, Rr, Rs, Rt, Ru, ScE, ScF, ScF2, ShE, ShE2, ShF, ShF2, Su, Sv, Sx, Sy, Tt2, Tu, Tv, Tw, VsD2, VsE, VsE2, VsF, VsF2, WgC, WgD, and WoC.

The information on ViewLA of the County of Los Angeles Intranet site may be turned on when the box labeled "Soil Survey (USDA)" from the Topography header is checked. Upon loading the "Soil Survey (USDA)" information, a series of two to four letters and numbers (symbols) as shown above are specified in regions with known data, which is generally in the Antelope Valley and unincorporated Santa Clarita Valley areas.

- **Option One** (for Attached/Detached Non-Habitable Structures and Habitable Additions less than or equal to 50 percent of the existing gross area of structure with a maximum of 400 sq. ft. only).

Submit a soil investigation (pdf format) addressing the collapsing soil condition with recommendations to mitigate the impact of soil consolidation below areas where new foundations are proposed. Include with the submittal an additional fee of 2 hours minimum for the review of such report by a building plan checker. Once approved, the building plan checker shall forward a pdf copy of the soil investigation to Geotechnical and Materials Engineering Division (GMED) for their record.

- **Option Two**

Pay a "Geotechnical Report, Site, and Plan Review" fee at the appropriate District office and submit a soil investigation (pdf format) to GMED addressing the collapsing soil condition with recommendations to mitigate the impact of soil consolidation below areas where new foundations are proposed. Submittals are uploaded online at: <https://dpw.lacounty.gov/apps/esubmissions/gme/default.aspx>.

- **Option Three**

Pay a "Geotechnical Site and Plan Review" fee at the appropriate District office and contact GMED to schedule a site inspection. Note that this may still require a soil investigation and additional review fees if GMED staff deems it necessary to address this and other possible issues of concern.

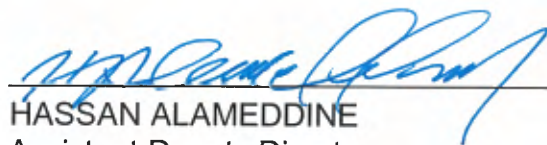
Other conditions such as expansive soils and liquefaction shall be addressed by the designer in addition to this policy.

Supersedes RCM R401.4 Article 3 dated 02-13-12

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