

Retaining Wall Permit Requirements

A retaining wall is a wall designed to resist the lateral displacement of soil or other materials.

When designing a retaining wall it is necessary to consider potential forces that could cause wall failure and compare them to stability calculations of the proposed wall taking into account good building practices and generally accepted safety factors. The building department reviews retaining walls for conformance to the **California Building Code** and all state mandated building requirements.

1. Determine if a building permit is required for retaining wall construction.

A permit with an engineered design is required if any of the following conditions exist:

- Total wall height is in excess of 4 feet measured from bottom of footing to top of wall
- Backslope is equal to or greater than 2 feet horizontal to 1 foot vertical (2:1 slope)
- Unique surcharge loading conditions exist (buildings, roads and terraced or tiered slopes)
- Solid fences are attached (or directly adjacent) to the proposed retaining wall
- Unusual groundwater or drainage problems exist

Some permits may not require engineering depending on design.

2. When a building permit is required, submit the following:

Site Drawings / Plot Plans:

Specify wall and footing location, dimensions, setbacks and easements in relation to all structures, pools, and property lines. Indicate dimensions for all property lines and include a north arrow. Indicate the project address, legal property owner's name and phone number.

Drawing Details:

Include complete construction details of the retaining wall in front and side elevation drawings. Indicate slope and/or surcharge along with any other relevant site conditions.

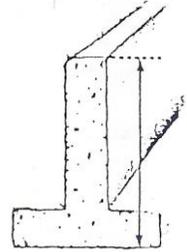
For submissions that require professional engineering, include drawing details and specifications that are wet stamped and signed by a California registered civil or structural engineer. ICC reports may be submitted for applicable segmental gravity retaining walls.

Specifications:

Indicate size and type of materials. Submit manufacturer specifications for precast concrete units as applicable.

3. Determine accurate height of proposed retaining wall.

Proper assessment of wall height is essential to reduce the possibility of wall failure. To properly assess the height, measure *both* the exposed wall and the embedded portion. The vertical distance should be measured from the bottom of the footing to the finish grade at the top of the wall as pictured.



4. Determine the type and condition of soil to be retained.

Documentation of soil types by a licensed engineer or testing lab may be required when obtaining permits. Clays, silts, and organic soils can cause performance or construction problems and should be evaluated by a soils engineer.

5. Determine wall loading conditions from slopes and surcharges.

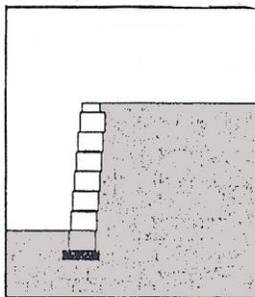
The *surcharge* is a vertical load imposed on the retained soil that may impose a lateral force in addition to the lateral earth pressure of the retained soil.

Examples of surcharges are:

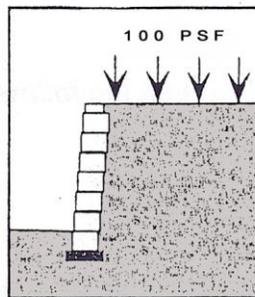
- Sloping retained soil
- Structure footings supported by the retained soil
- Adjacent vehicle loads supported by the retained soil

The *slope* is determined by the measure of the angle of vertical rise in relation to the horizontal run of retained soil.

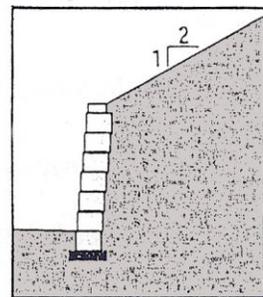
There are many possibilities for slope and surcharge loading conditions or combinations of both. The three most common design scenarios are pictured below.



Level Backfill
No Surcharge



Level Backfill
100 psf Surcharge



Sloping Backfill
2H:1V Maximum