COMMUNITY DEVELOPMENT DEPARTMENT

330 West 20th Avenue
San Mateo, CA 94403
www.cityofsanmateo.org

RESIDENTIAL RETAINING WALL GUIDE

A plain-language guide for homeowners

What is a retaining wall?

A wall that holds back soil so a sloped yard can be made flat and more usable. Because it constantly resists the weight of the earth (and anything on top of it), it must be built carefully.

Do I need a building permit?

Yes, if the wall is over 4 feet tall — measured from the **bottom of the buried footing** to the top of the wall, not just the part you see. If the wall has concrete piers, piles, or a shear key, measure from the bottom of those elements.

A shorter wall may still need a permit if it holds back extra weight ("surcharge"), such as:

Steep ground rising behind the wall

A building foundation or concrete/block fence close behind it

Cars or trucks nearby (driveways, streets), or heavy equipment

Large trees

(California Residential Code R105.2)

Do I need an engineer?

Yes, if any of these apply:

The wall is free-standing at the top and holds back more than 4 feet of soil

The wall is over 2 feet tall and supports anything besides plain soil (a fence, slope, or vehicles)

Groundwater could build up pressure behind it

A California-licensed engineer or architect must design the wall and show it won't tip, slide, sink, or lift from water, with a 1.5 safety factor (built to handle 50% more force than expected). Foundation walls under a building follow separate rules (CRC R404).

(California Residential Code R404.1 and R404.4)

Tiered (stepped) walls

Two or more short walls stepped up a slope instead of one tall wall. They must be spaced far enough apart, or the city treats them as one tall wall.

Rule of thumb: draw a 45° line up from the base of the lower wall. The base of the upper wall must sit outside that line — usually a setback at least equal to the lower wall's height. See illustrations on page 2.

What to submit with your application

- **Site plan** — where the wall sits relative to property lines, buildings, large trees, and easements
- **Project description** — scope of work, applicable codes, address, and the design professional's name, contact info, stamp, and signature
- **Cross-section drawings** and typical construction details
- **Structural calculations**, stamped and signed by a California-licensed professional
- **Manufacturer's specs and installation guide** for pre-made stacking block (gravity) walls
- **Drainage plan** if the wall is designed to drain (see below)

Drainage

Trapped water is a leading cause of wall failure. Plans must show the drainage type behind the wall and where the water ends up.

- Drain water cannot go into the sewer line
- Drain water cannot flow onto a neighbor's property
- Draining to the street requires an **encroachment permit from Public Works**; the pipe must run under the sidewalk to an approved outlet (storm drain, curb face, V-ditch, or creek)

Soils report

May be required for tall walls, large projects, heavy surcharge, or steep, unstable, or hazardous slopes. The Building Official and plan check team make the final call.

Slopes behind the wall

Filled or reshaped soil behind the wall cannot be steeper than 2-to-1 (2 feet across for every 1 foot up) unless your engineer's design and soils report allow it. Slopes must be protected from erosion with jute netting, hydroseeding, or planting.

Front yard walls

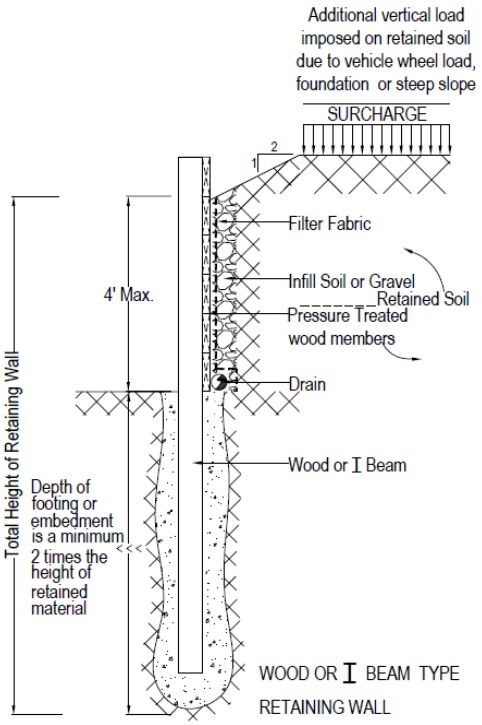
- Cannot be built over buried utilities between the sidewalk and curb, behind the sidewalk, or in any public utility easement
- On corner lots, check with Planning about visibility triangles (areas that must stay clear for drivers)

Not sure if your project needs a permit? Contact the Building Division before you start. A quick conversation up front can save time, money, and rework.

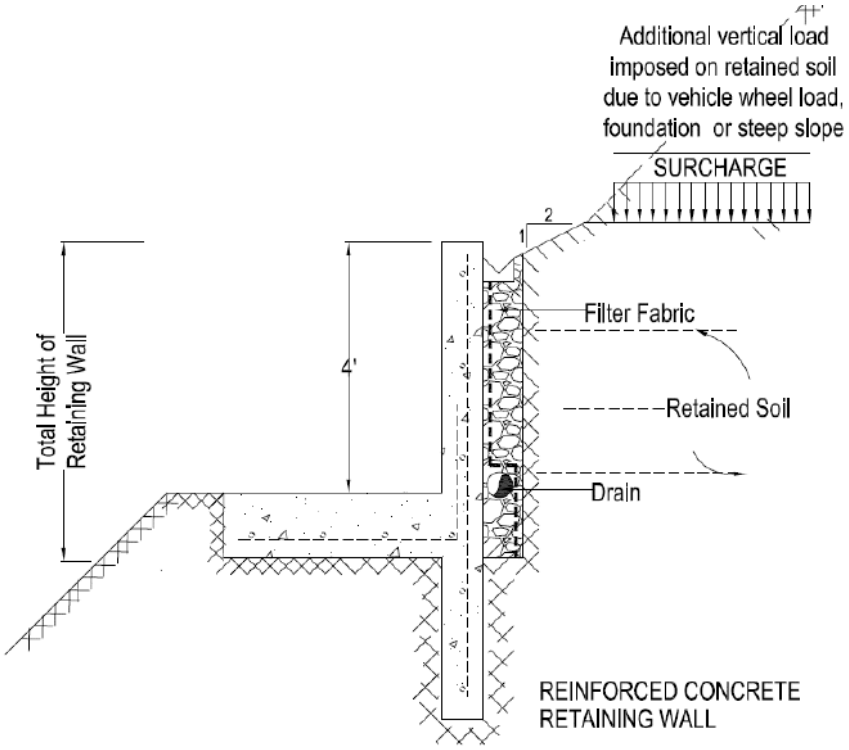
Building Division (650) 522-7172 · Code Enforcement Division (650) 522-7150
Housing Division (650) 522-7220 · Planning Division (650) 522-7212 · General (650) 522-7200

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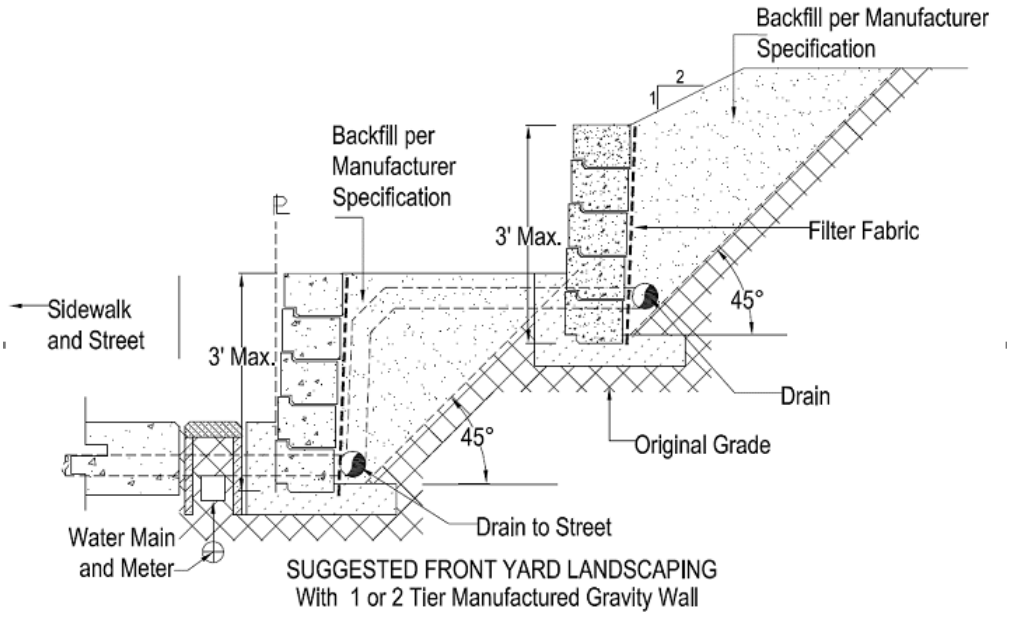
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WOOD OR I BEAM TYPE RETAINING WALL



REINFORCED CONCRETE RETAINING WALL



SUGGESTED FRONT YARD LANDSCAPING
With 1 or 2 Tier Manufactured Gravity Wall

Footnotes:

1. Surcharge is an additional excessive load due to slope of terrain, adjacent foundation or vehicle wheel load.

2. Retaining walls shall not be built over property lines without the expressed written approval of the adjoining property owner

3. These diagrams as shown will require a building permit and shall be prepared by a licensed engineer or architect.