

***Submittal Requirements for Retaining Walls
Supporting Buildings or Loaded by Buildings***
(Submit 4 sets of drawings and 2 sets of all other documents)

Walls retaining more than 3 feet of soil require a building permit issued from the Building Division of the Community Development Department when one or more of the following conditions exist:

- a) The retaining wall receives loading from a building or structure directly or indirectly (e.g., via passive soil pressures).
- b) The retaining wall system imparts loading onto a building or other structure, whether the building or structure is new or existing.
- c) The retaining wall supports a substantially solid fence (fence portion more than 3 feet high) that adds wind loading and/or seismic loading onto the retaining wall. Chain link fences without wood slats, for example, would not trigger this condition.

[Note: Retaining walls not meeting any of the above criteria may require a Site Development Permit issued by the Current Engineering Division of the Public Services Department. These include retaining walls over 4-feet in height as measured from the bottom of the footing to the top of the wall, or walls of any height that support a surcharge load (e.g., vehicle, parking area, sloping ground surface, or soil pressures exerted from adjacent retaining walls). Please contact the Current Engineering Division at 925-943-5834 for more information and specific submittal requirements for site development permits]

Retaining walls shall be designed by a licensed architect or a registered civil or structural engineer. A complete engineering evaluation shall be submitted to the city addressing the stability of the retaining wall and the structural integrity of the retaining wall system. Where the retaining wall influences the loads on a building, the engineering evaluation shall also address the effect of the loads onto the building. In all cases, and especially where tiered retaining walls are proposed, the analysis shall include complete free-body diagrams of the retaining walls showing what loads are acting onto the retaining wall system and what loads are resisting the applied forces. The calculations shall clearly state all assumptions and list the soil design parameters used in the design. Design criteria and materials evaluation shall be that contained in the 2001 California Building Code (CBC).

Retaining walls are often used to reduce site slopes, create level building pads, and stabilize slopes to allow construction on or adjacent to the slope. If a retaining wall is used at the toe of the slope, then the height of the slope, 'H', as used in CBC Section 1806.5, is measured from the top of the retaining wall to the top of the slope. In this instance, the building or structure placement relative to the retaining wall must be carefully evaluated. Depending on the placement of the building or structure, the following items must be addressed in the evaluation and analysis: slope drainage, erosion control, potential for shallow failures, potential soil creep, potential settlement, effect of installing new building or structure footings in areas which require passive soil pressures to resist retaining wall loads. If no retaining walls are used and the site slopes exceed 1 vertical unit in 3 horizontal units, then the provisions of CBC 1806.5 must be addressed for a proposed building or structure to be constructed on, or adjacent to, the slope.

City of Walnut Creek
Building Division
1666 N. Main Street, Walnut Creek, CA 94596
(925) 943-5834 phone (925) 256-3500 fax

Information Bulletin No. IB-38

If you have any questions about the submittal requirements for retaining walls regulated by the Building Division, please contact a plan check engineer at 925-943-5834 any time between 8:00 A.M. to 4:30 P.M.

Drawings Required

1. Plot Plan/Title Sheet
 - a) Identification of the property address and owner of the property
 - b) Identify parcel number
 - c) Property lines defining the parcel
 - d) All recorded or known easements
 - e) All existing buildings and accessory building footprints
 - f) Location and routing of the retaining wall dimensioned from the property lines sufficient to establish location of wall by survey.
 - g) All trees and their associated drip lines, including trees from adjacent property which have drip lines onto the subject property
 - h) Location and layout of any private sewer disposal system, including septic tank and leach field routing.
 - i) Location of any potable water wells.
 - j) All on site utilities
 - k) Top and bottom elevations of wall at the beginning and end of wall and at any grade change.
 - l) Set backs
 - m) North arrow and reference north
2. Grading and Drainage Plan
 - a) Existing and finish grade contours above and below the wall
 - b) Site sections showing toes and tops of slopes
 - c) Location and routing of the retaining wall(s)
 - d) Drainage system routing and termination details and specifications
3. Structural Plans
 - a. Elevation profile of the retaining wall, fully dimensioned and stationed from skewed corners, with elevations shown for top of wall, top of footing, and bottom of footing relative to a specified bench mark, and with finished soil grade elevations clearly designated along the uphill side and down hill side.
 - b. Cross sections thru the wall at each different wall and/or footing section, with uphill slopes shown to H/3 beyond the top of the slope and downhill slopes shown to H/2 beyond the toe of the slope, where the "toe" and "top of slope" and 'H' are defined by Figure 18-I-1 of the CBC and CBC Section 1806.5.
 - c. Blow-up details of critical areas, such as piers, intersecting elements, and skewed or 90-degree corner conditions
 - d. Complete material specifications
 - e. Listing of items requiring special inspection.

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Special Inspection Requirements

Where special inspection is required, a completed special inspection program must be submitted prior to issuance of the building permit. Special inspection program forms are available on the Building Division Web site: <http://www.ci.walnut-creek.ca.us/building>

Foundation/Soils Report

A foundation/soils report will be required to establish design criteria when any of the following conditions exist:

1. Where assumed design soil pressures used are less than 75 psf per foot of depth. This minimum pressure requirement was established for a typical restrained or partially restrained wall, assuming clay soil and a fully drained condition.
 - Exception: Retaining walls that meet all of the following conditions:
 - a) do not support buildings or structures other than a fence,
 - b) do not have intersecting skewed or right angles, and
 - c) are allowed to rotate to create active pressure conditions.In this instance, the design soil pressures must be at least 30 psf per foot of depth, per CBC Section 16121.6.
 - a) When tiered retaining walls are used.
 - b) When undrained soil conditions are proposed.
 - c) When an alternative setback or clearance, as provided under provisions of CBC 1806.5.6, is being used.
 - d) The engineer or architect incorporates allowable resistance design values greater than values corresponding to Class of Materials, Item 5, of CBC Table 18-I-A.
 - e) The site is located within an Alquist-Priolo Special Studies Zone.
 - f) The site has a history of soil related problems (e.g., creep, settlement, lateral spreading, etc.).

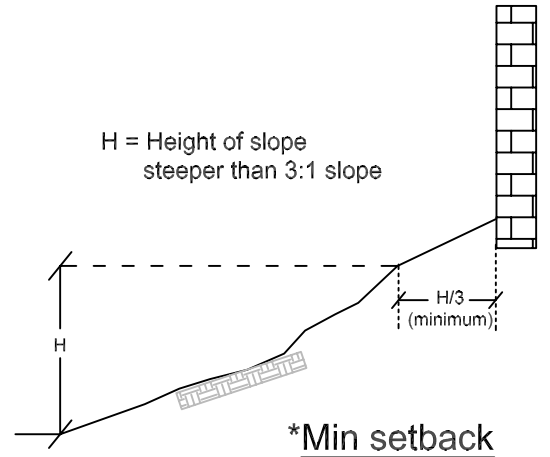
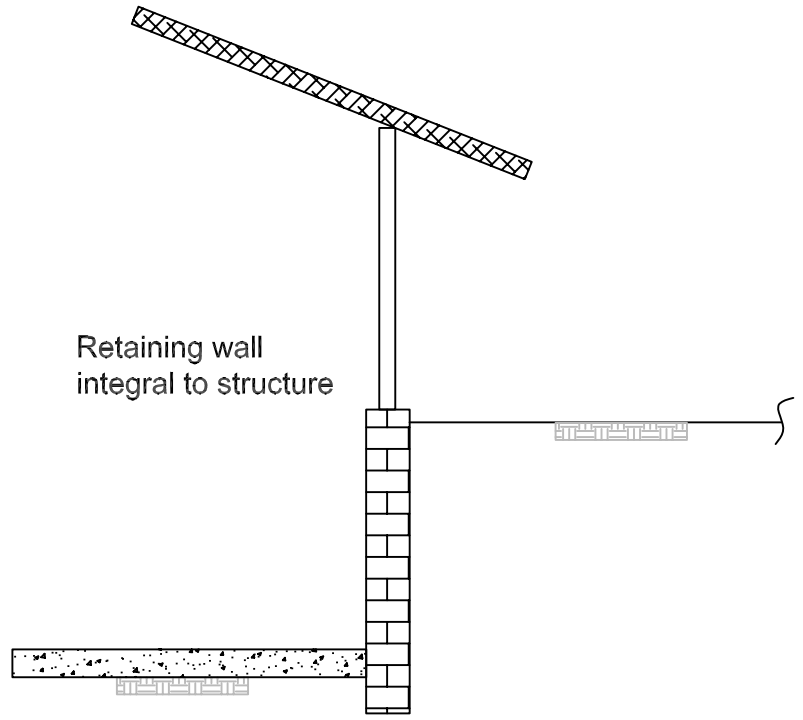
The soils report shall be prepared by a registered civil or geotechnical engineer.

Construction Debris Recycling Plan

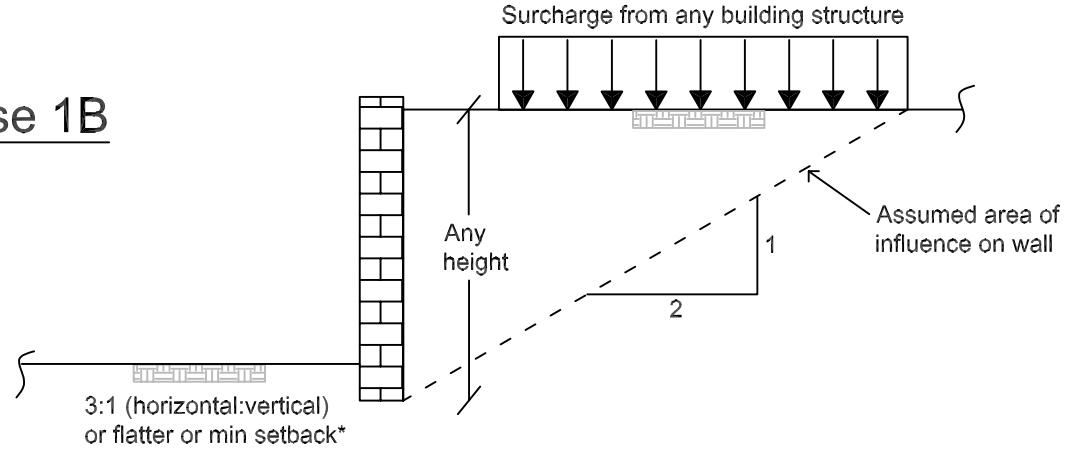
This is applicable for overall projects (developments) where the total costs are \$50,000, or greater, or the area of building construction or demolition associated with the project exceeds 5,000 square feet. Please note that a building permit will not be issued until the completed Waste Management Plan has been submitted to and approved by the City. A final waste management report is required prior to final of a permit.

FIGURE 1
Examples of
Retaining Walls
Requiring a Building
Permit

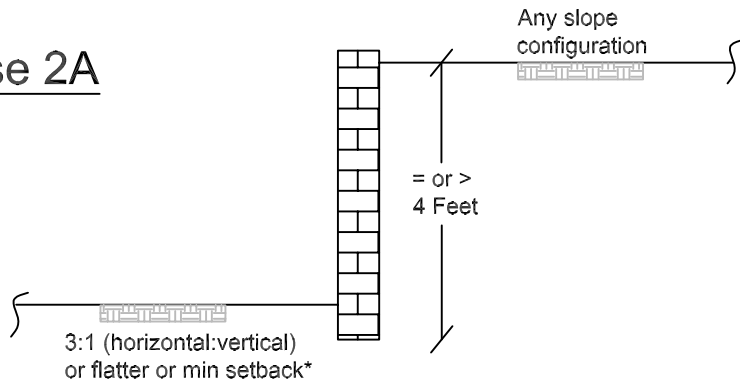
Case 1A



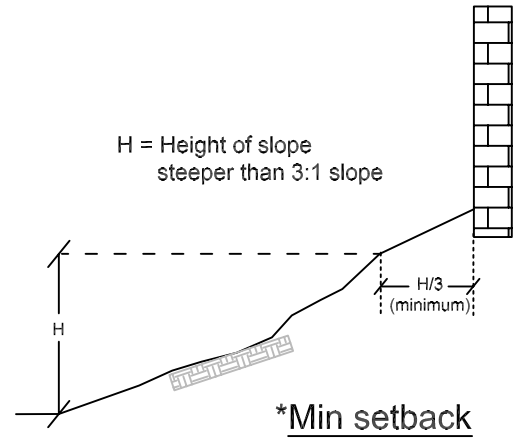
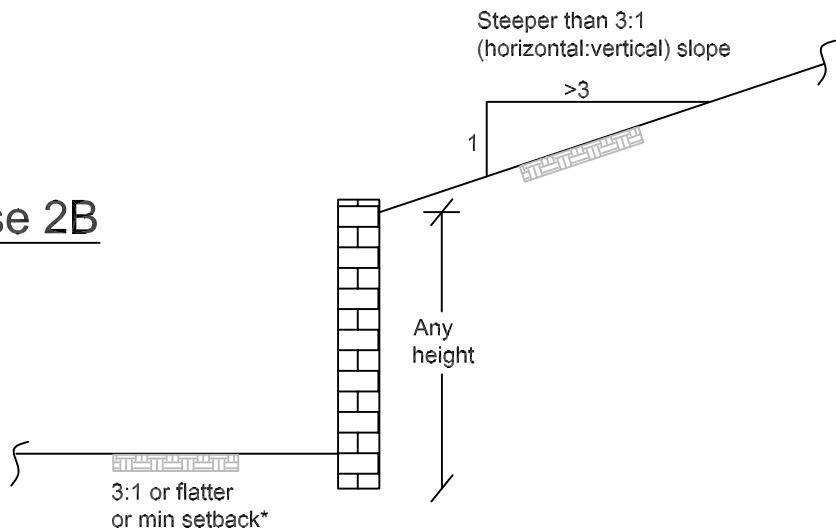
Case 1B



Case 2A



Case 2B



Case 2C

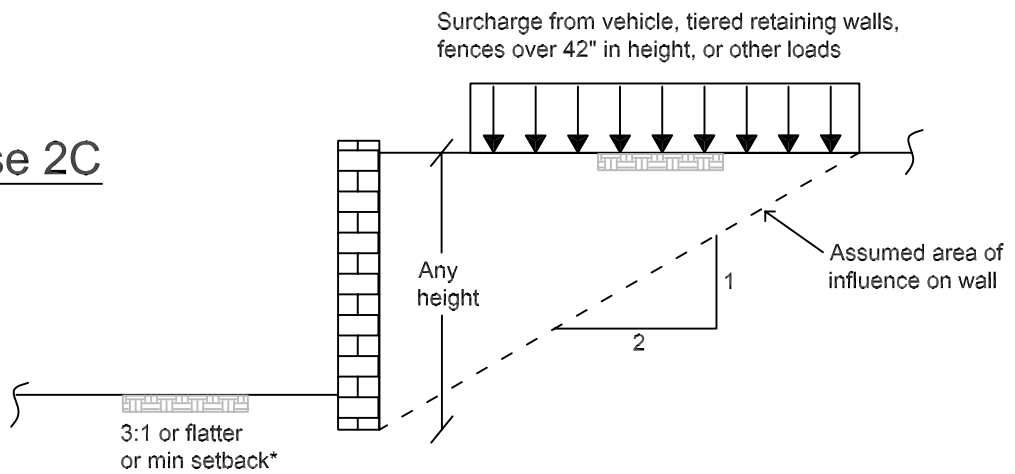
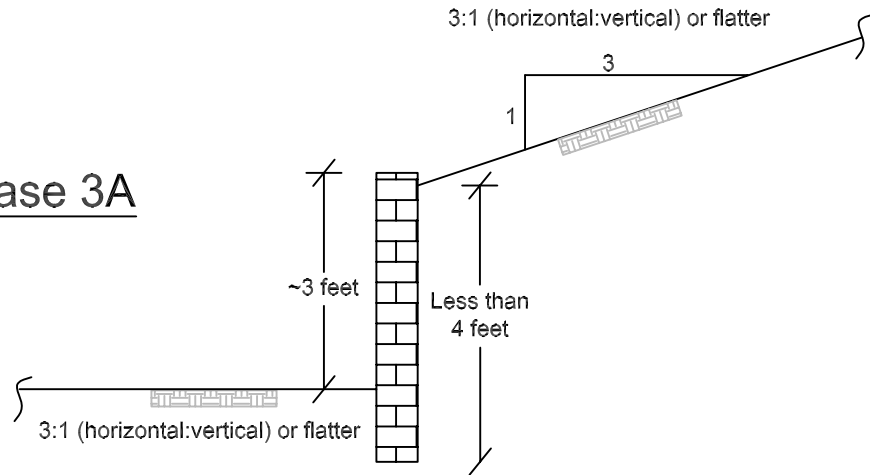


FIGURE 2
Examples of Retaining Walls Requiring a Site Development Permit

Case 3A



Case 3B

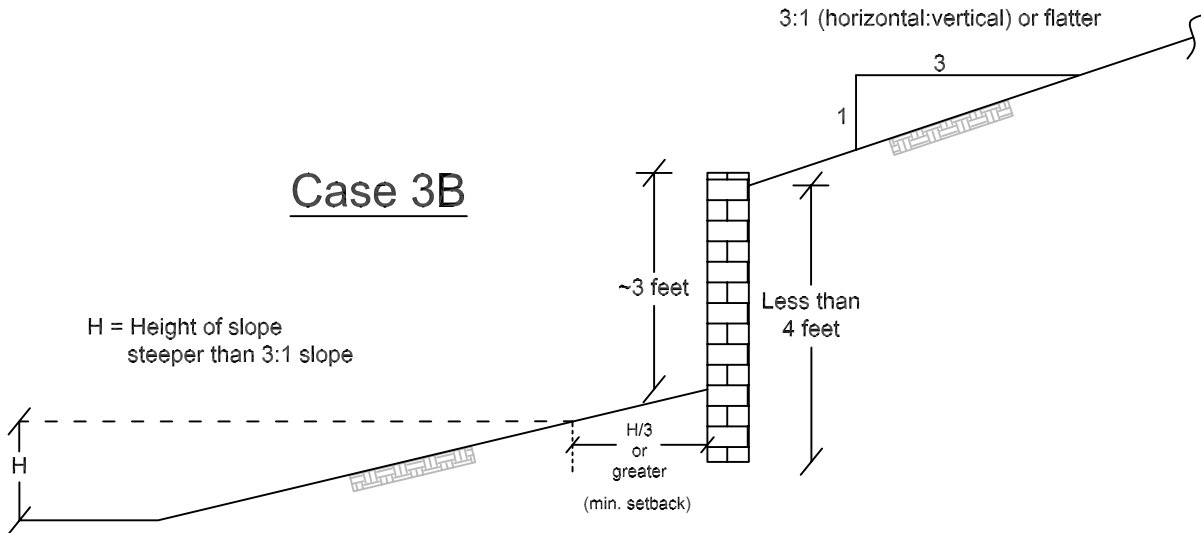


FIGURE 3
Examples of Retaining Walls **NOT** Requiring a Building or Site Development Permit