



# Combination Retaining and Free Standing Wall

## Minimum Requirements

This information bulletin outlines the City's requirements for retaining walls with level backfill with a free standing wall above. A grading permit may also be required if the general drainage pattern is altered or the flow concentrated. Please contact the City's Land Development Division with questions regarding grading permits.

No permit is required if the total height is less than 7' measured from the lower grade to top of wall with a maximum of 2' retained soil.

### Type of Block

All retaining walls must either be constructed using decorative block or must be finished (e.g., with stucco) to match the main structure.

### Inspections (If taller than 7')

Obtain a building permit. Inspections must be performed during several phases of construction. Please call (760) 639-6106 for inspections at the following construction stages:

1. A footing inspection is needed when the footing has been dug with the steel tied securely in its final position and the site is ready for the concrete to be placed.
2. A masonry pre-grout inspection is required when the block has been laid and the steel is in place, but before the grout has been placed.
  - a. Retaining wall portion must be solid grouted.
  - b. Free standing wall must be partial grouted.
3. Call for a final inspection when all work has been completed.

### Block

All block must be type "N" grouted solid with  $f'_m=1,500$  psi.

### Mix Requirements

Note: The use of plastic cement is not permitted in retaining walls.

1. The concrete mix for footings must meet a compressive strength of  $f'_c=2,500$  psi minimum.

2. The mortar mix must have a compressive strength equal to 1,800 psi minimum.  
One possible mix contains the following proportions by volume:
  - 1 part Portland cement
  - 3½ parts sand
  - ¼ part hydrated lime or lime putty
  
3. Grout must have a compressive strength equal to 2,000 psi minimum. One possible mix contains the following proportions by volume:
  - 2 part Portland cement
  - 3 parts sand
  - 3 parts pea gravel (3/8-inch aggregate)

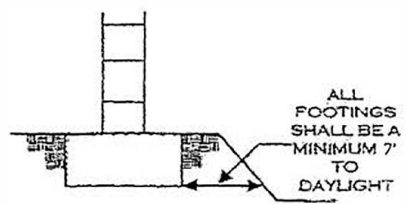
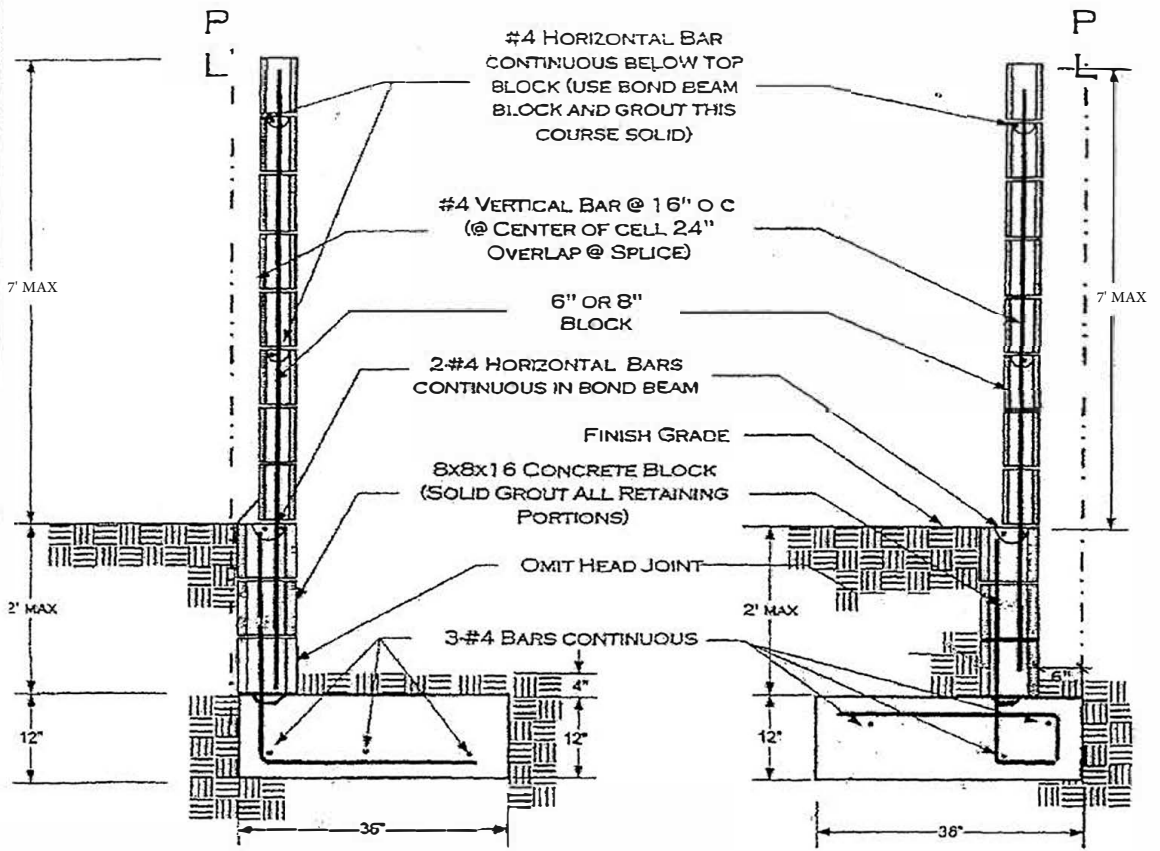
Add water until pouring consistency is achieved without segregation of the grout constituents. Rod or vibrate immediately. Re-rod or re-vibrate grout about 10 minutes after pouring to ensure solid consolidation. Stop grout two (2) inches from top of masonry units when grouting of second lift is to be continued at another time.

#### Mortar Key

To ensure proper bonding between the footing and the first course of block, a mortar key must be formed by embedding a flat 2 x 4 flush with and at the top of the freshly placed footing. It should be removed after the concrete has started to harden (about one (1) hour). A mortar key may be omitted if the first course of block is set into the fresh concrete when the footing is placed and a good bond is obtained.

#### Reinforcing Steel

Reinforcing steel must be deformed and comply with ASTM specification A615-85, Grade 40 or 60. When one continuous bar cannot be used, a lap or splice of 24" is required.



**INSPECTIONS REQUIRED**

1. FOUNDATION, EXCAVATION, TRENCH CLEAN WITH STEEL IN PLACE
2. STEEL, INSPECT BEFORE GROUTING
3. FINAL, AFTER GROUT, PRIOR TO CAPPING OF WALL
4. FOR INSPECTIONS CALL (760) 639-6106