



Retaining Walls

BI-99

PLEASE NOTE - THE NEW 2007 CALIFORNIA BUILDING CODES ARE IN EFFECT

INTRODUCTION

The information provided below summarizes the California Building Code and is not a replacement for it. It is designed to clarify the minimum requirements of the City of San Clemente standard concrete/masonry retaining wall construction.

The City of San Clemente concrete/masonry retaining wall standard detail can be used for retaining wall projects without the need for further engineering. **ANY DEVIATION** from the standard detail or any special circumstances will require a Registered Professional Engineer or Licensed Architect to submit a design for review and approval.

Retaining wall includes the following wall types: a concrete/masonry wall, railroad tie wall, interlocking wall, or shoring wall.

In general, retaining walls less than 4 feet tall, measured from the bottom of the footing to the top of wall, with level backfill are exempt from the permit requirement. However, certain planning, zoning, or development standards may still apply that require Planning Division approvals and permits.

RETAINING WALL PERMIT PROCESS

A retaining wall permit is required from the Building Department any time the **TOTAL** height of the wall (measured from bottom of footing to top of wall) exceeds 48 inches. Any retaining wall constructed on a slope or a wall with a sloping backfill will also require a permit. Additionally, walls that incorporate fencing on top, or surcharge loading, or any other configuration will require a structural design by a Registered Professional Engineer or Licensed Architect and will require a permit.

Special circumstances are applicable for bluff top lots where additional requirements apply, and walls constructed on the common property line will require a "Common Wall Agreement". This form is available at the Building Division Counter. Verification of property lines is required at the time of inspection.

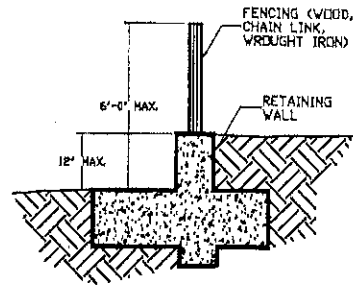
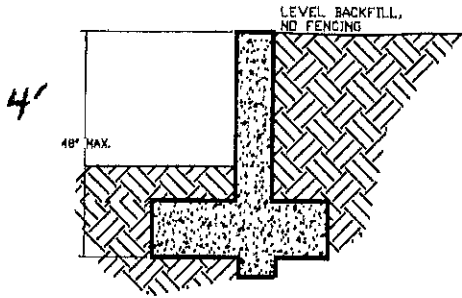
IMPORTANT: *The Building Division and the Planning Division have separate requirements for retaining walls. All applicants must obtain approval from the Planning Division Prior to submitting to the Building Division. A grading permit may also be required through the Engineering Division.*

Retaining wall permit applications shall be submitted at the Building Division Counter and shall include the following forms:

- Permit Application
- Construction and Demolition Waste Reduction and Recycling Application
- Best Management Practices handout

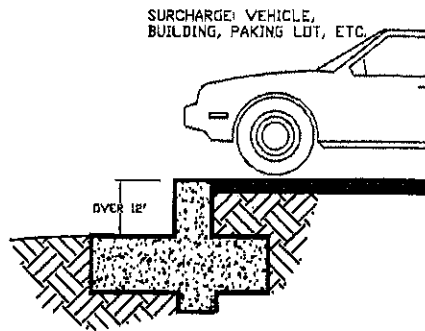
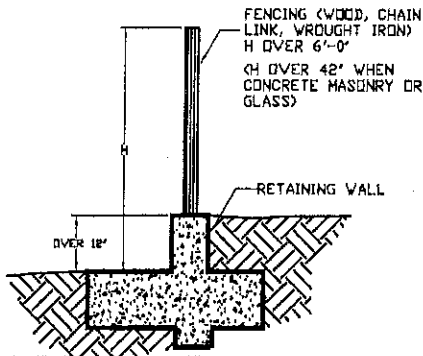
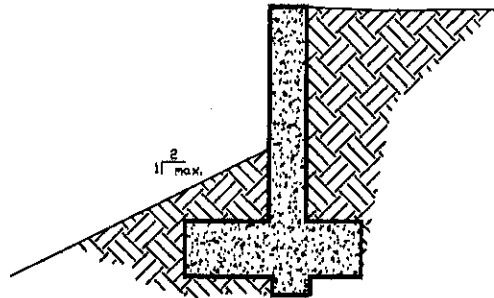
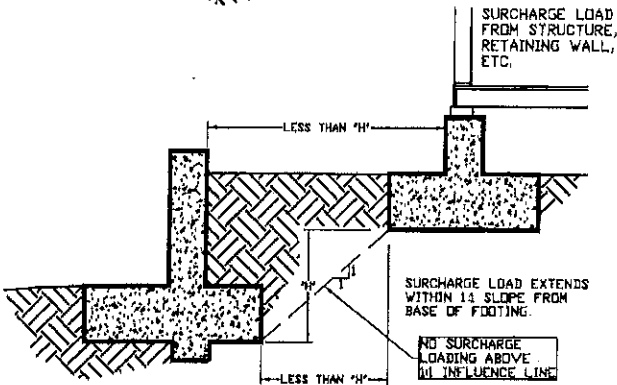
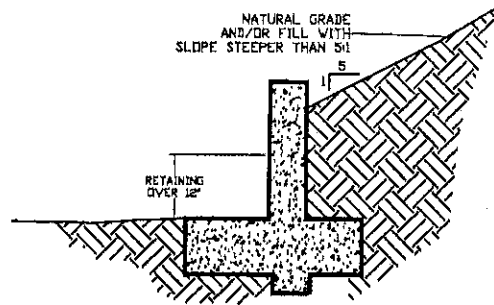
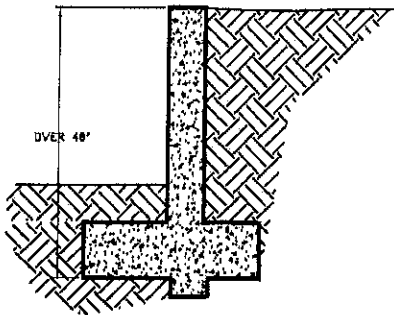
PERMITS ARE NOT REQUIRED FOR THE FOLLOWING CONDITIONS:

But-check with the Planning and Engineering Division prior to construction of any retaining wall to ensure that wall will not be built in a required setback or right-of-way.



PERMITS ARE REQUIRED FOR THE FOLLOWING CONDITIONS:

ALL RETAINING WALL PLANS AND STRUCTURAL CALCULATIONS SUBMITTED FOR PERMITTING AND REVIEW SHALL BE SIGNED AND SEALED BY A CALIFORNIA REGISTERED CIVIL OR STRUCTURAL ENGINEER AND A SOILS REPORT MUST BE PROVIDED OR WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARD DETAILS.



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CITY OF SAN CLEMENTE
BUILDING DIVISION

PERMIT GUIDELINES
FOR
RETAINING WALLS

GENERAL INFORMATION

Please provide the following information on the plan:

- "All work shall comply with Chapters 19 Concrete and 21 Masonry of the California Building Code and City of San Clemente Ordinances"
- "A separate permit(s) is/are required for accessory building, swimming pool, shoring, retaining walls, block walls over 42 inches in height, patio covers, demolition, etc."
- "Property line Certification required". All work at the property line without a Common Wall Agreement will require a property line certification.

DRAINAGE

Provisions shall be made to relieve hydrostatic pressure via sub-drains behind the wall. Install a 4" perforated drain line and a 12" gravel pocket. Water is not permitted to drain onto adjoining properties. Show the drainage line and termination point on the site plan. An Encroachment Permit is required for work in the city right of way or curb cuts.

SITE PLAN

Provide a fully dimensioned site plan, drawn to scale, showing the lot size, street, alley, easements, parking, walls, projections, and building locations. Delineate all project elements and show distance(s) to property lines and adjacent structures. Your site plan shall also show the general site slope and drainage patterns and discharge locations for drainlines. Clearly show the locations and dimension lengths of the new walls and provide Top of Wall (TW), Finish Grade (FG), and Top of Footing (TF) notations at each wall, at any change in retaining wall construction, and at intervals of 2 ft. where changes in height of retaining condition(s) exist.

MASONRY UNITS

Shall conform to ASTM C 90, and manufactured in accordance with Masonry Standards Joint Committee (MSJC) standards. Grade N, $f'_m = 1500$ psi

CONCRETE

Due to sulfates commonly in the soils in many areas of San Clemente, concrete shall have a minimum compressive strength of 4500 psi at 28 days and a water/cement ratio = 0.45 unless a soils report recommends otherwise. Portland Cement shall conform to ASTM C 150, TYPE V.

Special INSPECTION

This design is based on a 2500 PSI concrete strength. Special Inspection is not required using this plan. Provide a "Trip Ticket" from the batch plant for verification of proper concrete mix (4500 PSI, type V)

MORTAR

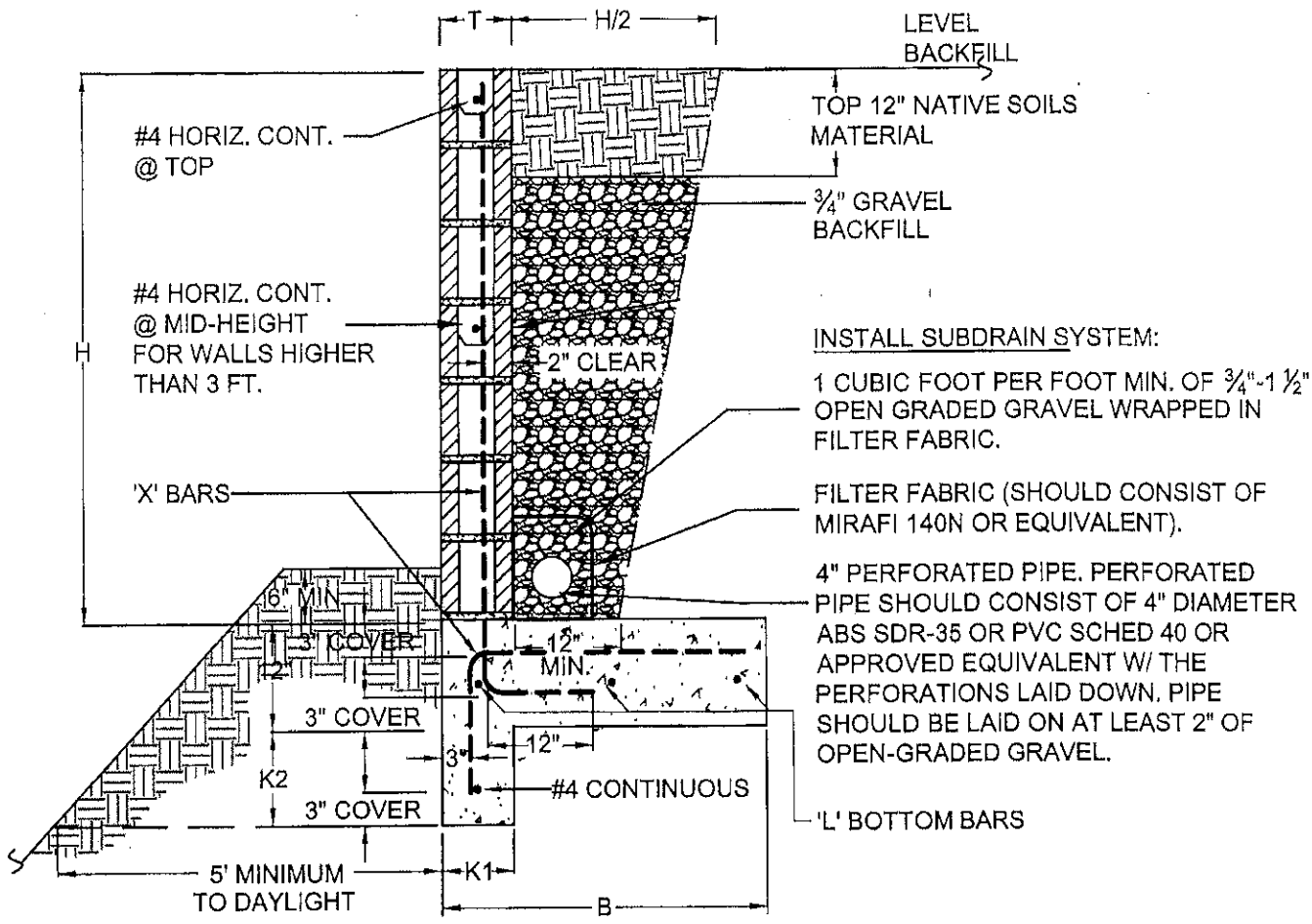
Shall be freshly prepared and uniformly mixed in the ratio by volumes of 1 part cement, $\frac{1}{2}$ part lime putty, 4 $\frac{1}{2}$ parts sand and shall conform to ASTM C 270. If plastic type cement is used, the lime putty shall be omitted. Cells with reinforcements shall not contain mortar projections over $\frac{1}{4}$ ".

GROUT

Shall be of fluid consistency. Ratio by volumes 1 part cement, 3 parts sand OR 1 part cement, 3 parts sand, 2 parts pea gravel. Units shall be laid a maximum of 4 feet before grouting. Lifts up to 5 feet may be allowed with the use of cleanouts at the reinforcement cells.

REINFORCING STEEL

Shall be deformed bars conforming to ASTM A 615 Grade 60 or better.



INSTALL SUBDRAIN SYSTEM:
 1 CUBIC FOOT PER FOOT MIN. OF 3/4"-1 1/2" OPEN GRADED GRAVEL WRAPPED IN FILTER FABRIC.
 FILTER FABRIC (SHOULD CONSIST OF MIRAFI 140N OR EQUIVALENT).
 4" PERFORATED PIPE, PERFORATED PIPE SHOULD CONSIST OF 4" DIAMETER ABS SDR-35 OR PVC SCHED 40 OR APPROVED EQUIVALENT W/ THE PERFORATIONS LAID DOWN, PIPE SHOULD BE LAID ON AT LEAST 2" OF OPEN-GRADED GRAVEL.

WALL INFORMATION TABLE						
H	B	T	X	L	K1	K2
>2' - 3'	3'-0"	6"	#3 @ 24" O.C.	3 - #4	-	12"
>3' - 4'	3'-8"	8"	#4 @ 24" O.C.	4 - #4	8"	18"
>4' - 5'	4'-8"	8"	#5 @ 16" O.C.	4 - #5	12"	24"

NOTES:
 VERTICAL BARS SHALL BE LAPPED 2 FEET WHERE NOT CONTINUOUS.
 ALL HOOKS SHOWN SHALL BE STANDARD 90° HOOKS.
 SOLID GROUT ALL CELLS.
 DESIGN BASED ON 60 PCF ACTIVE SOIL PRESSURE, NON-EXPANSIVE SOIL ONLY

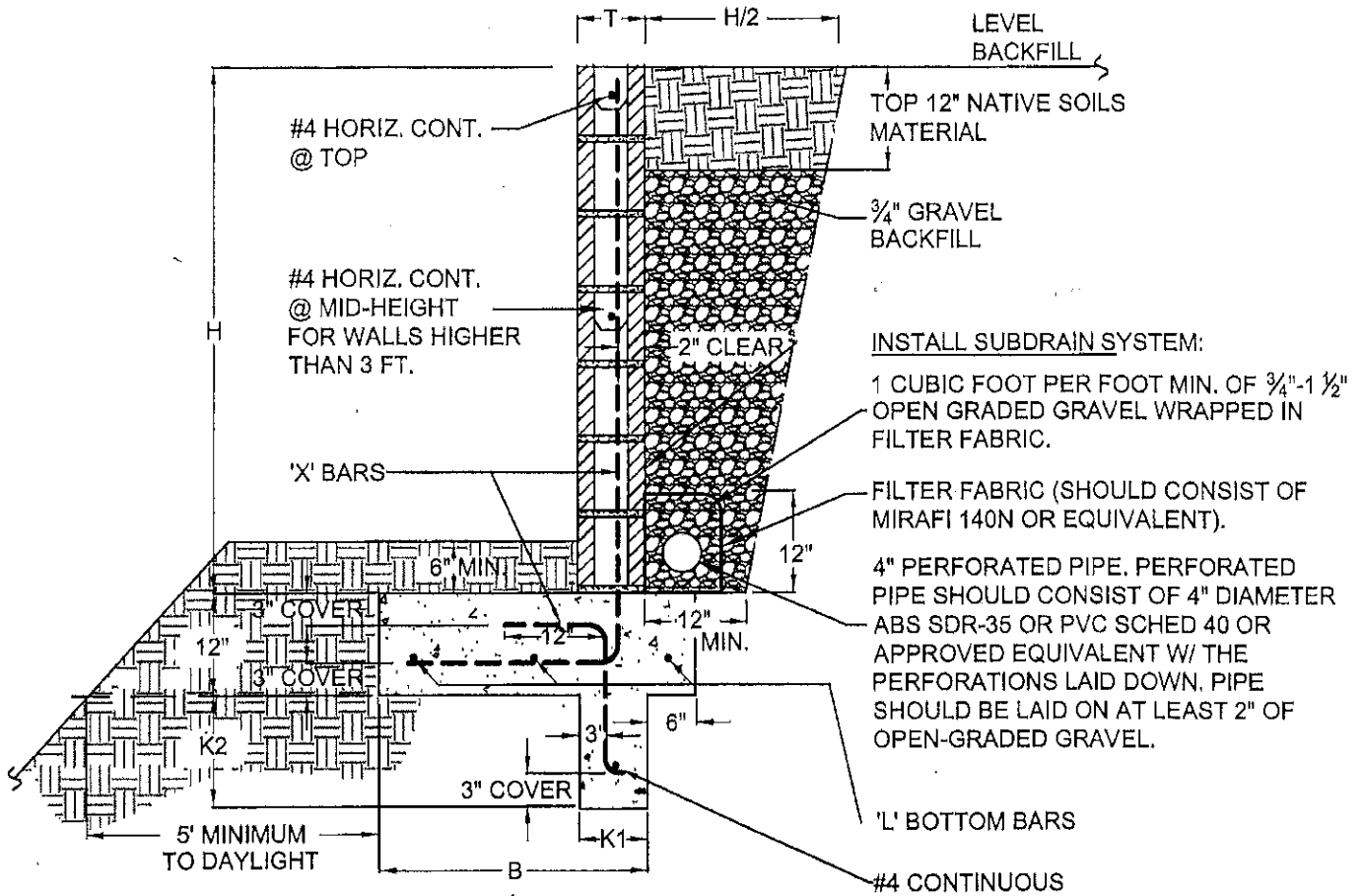
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CITY OF SAN CLEMENTE
BUILDING DIVISION

STANDARD
RETAINING WALL DETAILS
(TYPE 2)

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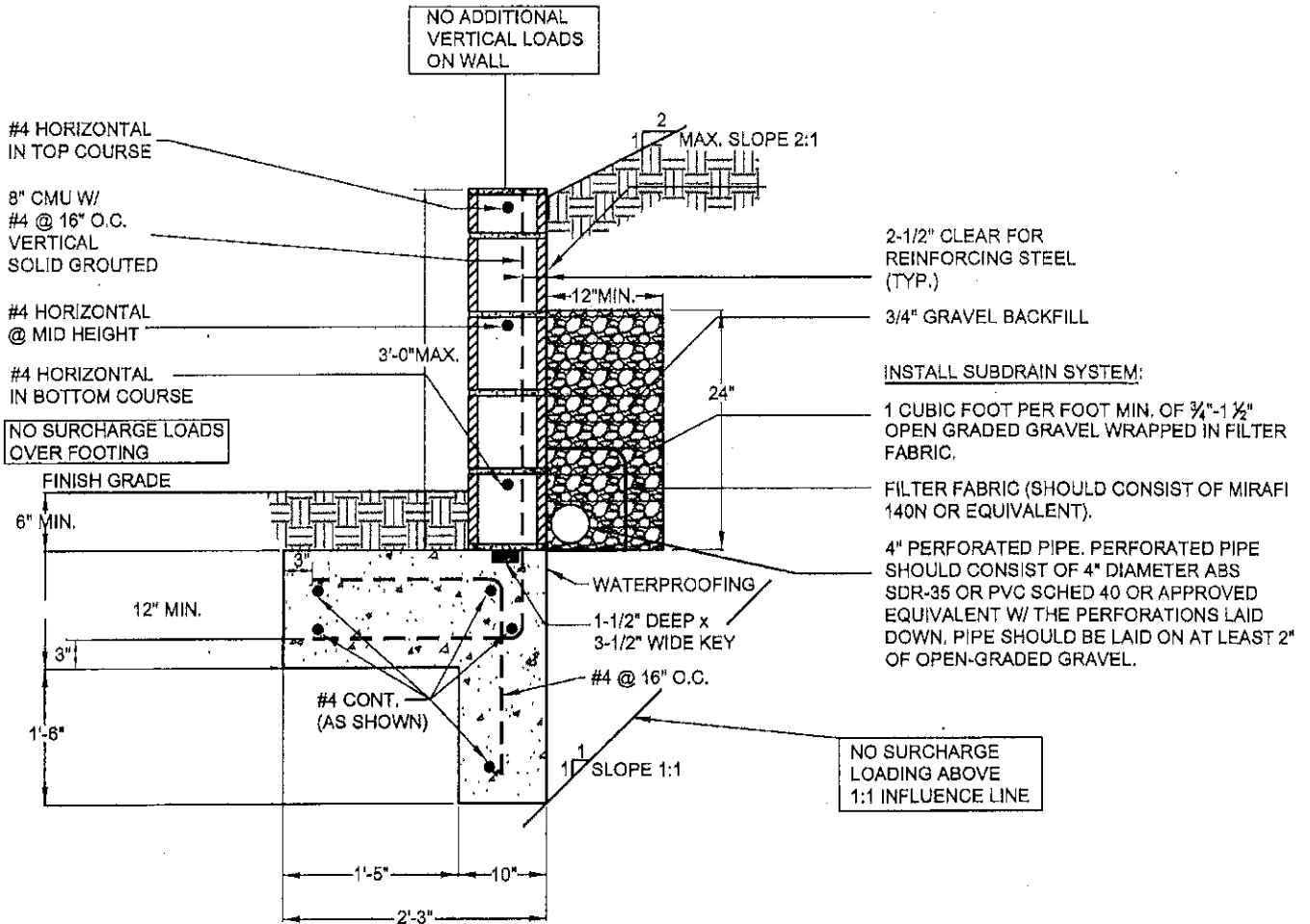
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CITY OF SAN CLEMENTE
BUILDING DIVISION

STANDARD
RETAINING WALL DETAILS
(TYPE 1)

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CITY OF SAN CLEMENTE
BUILDING DIVISION

RETAINING WALL DETAILS
3'-0" MAX. HEIGHT
2:1 MAX. SLOPE
(TYPE 3)

SHEET 6 OF 6