

## Wood and Masonry Fences

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The Construction of masonry or wood fences, six feet or less in height and not supporting any other super-imposed loads such as those resulting from the self weight of chain link fences, glass panels, etc, does not require a construction permit from the City of Poway Building Department. However, their construction and location is regulated by the California Building Code as amended by the City of Poway. This information bulletin outlines the City's requirements.

### I. FENCE HEIGHT

Fence heights are also regulated by the zoning laws of the City. Fence height is measured from the lowest grade abutting the fence to the top of the fence, except that the height of a fence on top of a retaining wall is measured from the grade on the higher side of the retaining wall.

### II. DESIGN CRITERIA

Material requirements in Table A are based on the following design criteria:

1. Wind speed 85 MPH, Exposure C.
2. Seismic Design Category D.
3. Soil bearing pressure is 1,500 psf minimum.
4. For the purpose of the structural design, wall height shall be measured from the top of the footing to the top of the wall.
5. Footing depth shall be 24 inches below finish grade and 12 inches of compacted soil is required on top of footing to stabilize the wall.
6. For zoning requirements fence height shall be measured from finish grade.

**If the design criteria are different, table values must be adjusted.**

### III. WOOD/CHAIN LINK FENCES

Details for typical wood panel lock fences, board fences, and chain link fences are shown in Figures 1, 2, and 3.

Additional requirements are noted below:

**A.** Wood posts shall be of naturally durable or preservative-treated wood (CBC 2304.11.2.7). Wood posts shall be No. 2 foundation-grade redwood, or pressure-treated Douglas fir-larch No. 2 or better.

**B.** Preservative treatment must be applied to the ends of wood posts buried in the ground.

**C.** Set posts/pipes in 12-inch diameter concrete footings extending at least 24 inches into undisturbed natural ground or properly compacted fill. Footings must be placed over 3 inches of loose gravel. Wood posts must extend through concrete footings to gravel below.

**D.** Structures located in Very-High Fire Hazard Severity Zones, governed by Chapter 7A of the California Building Code, may need to meet additional fire protection requirements.

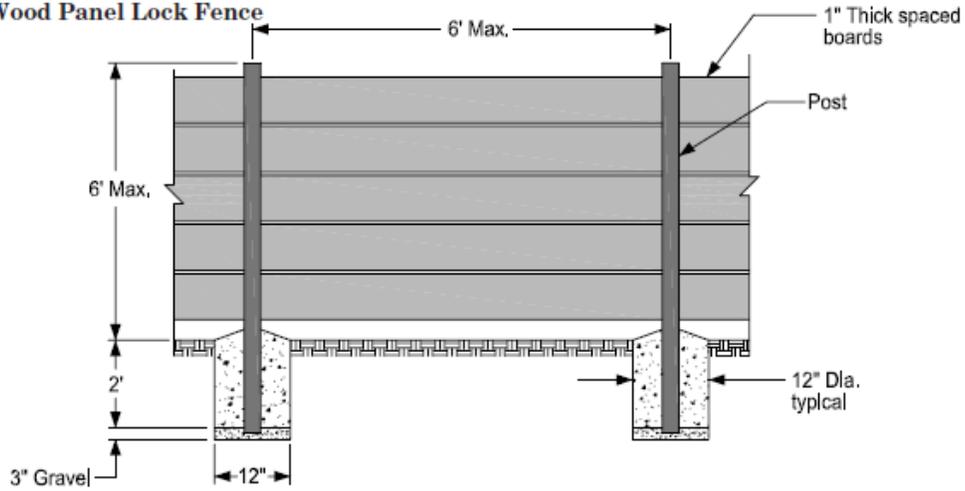
### IV. CHAIN LINK FENCES

This information bulletin does not address the design of the metal chain link fence and the supporting metal posts. Sizes and spacing should follow manufactures installation specifications. Figure 3 shows footing requirements for chain link fence not more than 6 feet in height.

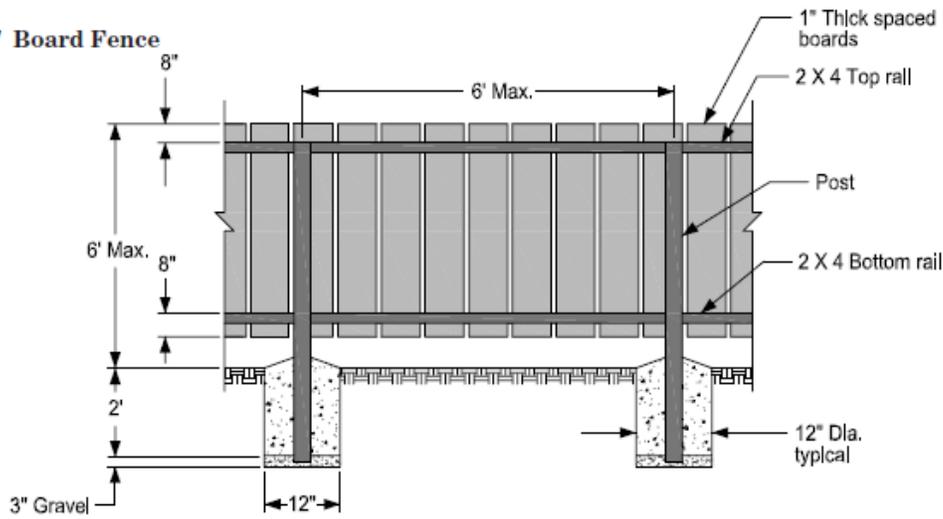
### V. MASONRY FENCES

Table A contains dimensional requirements for masonry fences and footings. All footings must extend at least 12 inches into undisturbed natural soil or compacted fill which has been compacted to at least 30 percent density. Soil should be dampened prior to placing concrete in footings, See figure 4.

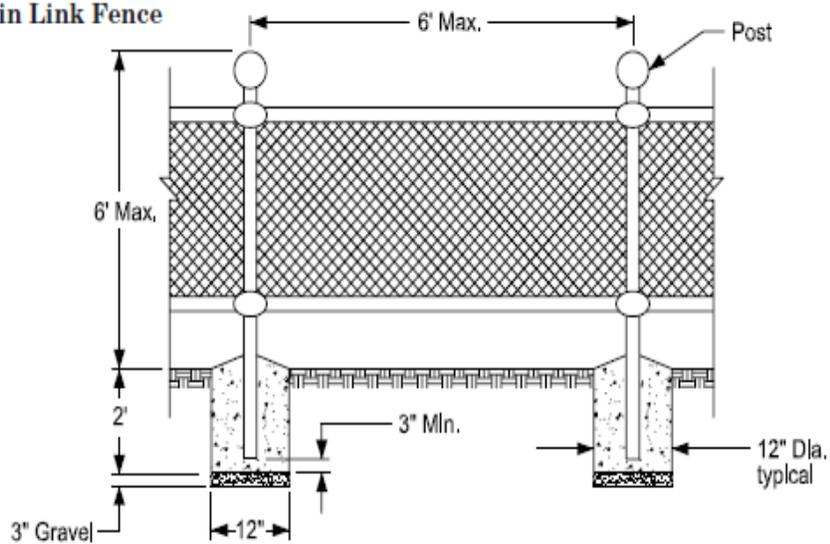
**Figure 1 / Wood Panel Lock Fence**



**Figure 2 / Board Fence**



**Figure 3 / Chain Link Fence**



If fences do not conform with the design criteria in this bulletin, fences shall be designed by a registered professional (civil engineer or architect) licensed in the State of California. Plans may be submitted and a soil report may be required

**A. MASONRY BLOCKS**

Concrete masonry units shall be of sizes shown on the drawings and conform to ASTM C 90 (CBC 2103.1) Medium Weight Units with maximum linear shrinkage of 0.06%  $F_m = 1,500$  psi grouted solid reinforced cells.

All head and bed joints shall be 3/8" thick. Bed joints of the starting course over the concrete foundation may be between 1/4" and 3/4". (ACI 530.1-05 section 3.3B)

No special inspection is required for fences up to 6 feet in height.

**B. CONCRETE**

Concrete for footings must have minimum compression strength of 2,500 psi at 28 days (CBC Table 1808.8.1). Cement shall conform to ASTM C 150 (ACI 318-05 section 3.2)

Note: Plastic (Stucco) cement ASTM C 1328 is not permitted in fences located in Seismic Design Category D.

**C. MORTAR**

The mortar mix must have a compressive strength equal to 1,900 psi minimum (CBC Table 2105.2.2.1.1) Mortar for use in masonry construction shall conform to ASTM C 270.

**D. GROUT**

Grout must have a compressive strength equal to 2,000 psi minimum, Section 2105.2.2.1.3 or ASTM C 476. When grout conforms to ASTM C 476, the grout shall be specified by proportion requirements or property requirements (CBC 2103.12)

**E. REINFORCING STEEL**

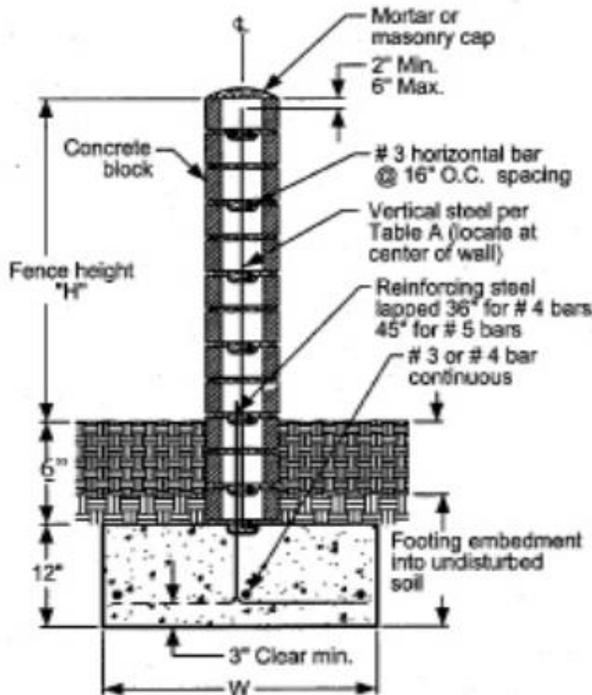
Reinforcing steel must be deformed and comply with ASTM A 615, Grade 40 or 60. When one continuous bar cannot be used, a lap or splice of 40-bar diameters is required. All bars shall be clean of loose flaky rust, grease or other materials likely to impair bond (ACI 308-05 section 5.7)

Reinforcement in concrete shall be protected from corrosion and exposure to chlorides. (ACI 318-05 section 7.7.6). Concrete protection for reinforcement shall be at least 3" to earth when the concrete is poured against the earth. (ACI 308-05 section 7.7.1)

**F. 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 2x4 flush with and at the top of the freshly placed footing. It should be removed after the concrete has started to harden (about 1 hour). A mortar key may be omitted if the first course of block is set into the fresh concrete and a good bond is obtained.

**Figure 4 / Masonry Fence**



Fence height, H (feet)	Material	Footing width, W	Reinforcing steel
4	6" concrete block	12"	#3@ 16" o.c.
	8" concrete block	12"	#3@ 24" o.c.
5	6" concrete block	18"	#4@ 24" o.c.
	8" concrete block	18"	#3@ 24" o.c.
6	8" concrete block	24"	#4 @ 24" o.c.

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**\*\*\*Please contact the Poway Building Division if you have any questions or concerns at (858) 668-4645 or [building@poway.org](mailto:building@poway.org)\*\*\***