



DEVELOPMENT SERVICES DEPARTMENT

BUILDING DIVISION

276 Fourth Avenue Chula Vista CA 91910

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# PATIO COVERS- LIGHTWEIGHT

## FORM 4593

### I. GENERAL

A patio cover is defined in the current Edition of the California Residential Code (CRC), as being a one story, roofed structure, not more than 12'-0" in height above grade and used only for recreational and/or outdoor living purposes. Patio covers are not permitted to be used as carports, garages, storage structures or as habitable space.

Patio covers may be attached, or detached, and are permitted as an accessory structure to single family dwellings or duplexes, lodging houses or individual dwelling units in apartment or condominium buildings.

### II. GENERAL PLAN DESIGN REQUIREMENTS:

- A. Patio covers are open structures. For patio enclosures, see Form 4594.
- B. For patio covers proposed to be located less than 5 feet from a property line, the wall on the property line side is required to be constructed of one hour rated construction, without openings, from the foundation to the underside of the roof sheathing.
- C. Minimum headroom height from the floor of the patio cover to the bottom of the roof rafters is 7 feet and to the bottom of a roof beam or header is 6'-8".
- D. All electrical wiring and equipment should be shown or noted to comply with requirements governing exterior electrical installations.

### III. STRUCTURAL REQUIREMENTS:

- A. Concrete mix for footings must meet a minimum compressive strength of  $f'c = 2,500$  psi or the following proportions by volume; 1 part Portland cement,  $2\frac{1}{2}$  parts sand,  $3\frac{1}{2}$  parts of  $\frac{3}{4}$ " maximum sized gravel and 7 gallons of water per sack of cement.
- B. Lumber must meet the following requirements
  - 1. Be of # 2 Douglas fir-larch or better grade.
  - 2. Must be grade marked.
  - 3. Joists, girders and posts may be required to be protected against decay and termites.
  - 4. Posts must be 4" x 4" minimum nominal dimension.
- C. Posts must be anchored at the lower end and braced on the upper end. Decorative type bracing may be substituted if similar resistance to lateral loading is provided.
- D. Patio cover posts and/or columns may be supported on slabs (minimum  $3\frac{1}{2}$ " thickness) of not less than 2,500 psi compressive strength,

anchored with standard approved post base, installed per manufacturer's installation instructions. Pad footings are not required when the total load (live plus dead) does not exceed 750 pounds.

- F. Specify all proposed roof coverings on plans. If plastic roof coverings are used, they shall be installed such that the corrugations are perpendicular to and across the supports and be in accordance with the manufacturer's installation instructions.
- G. All roofs are required to slope at a minimum of  $\frac{1}{4}$ " per foot for drainage purposes.
- H. If roof beams are to be supported by an existing exterior wall, either of the following attachments may be used:
  - 1. A ledger may be fastened to the studs with  $\frac{1}{2}$ " x 5" lag screws spaced at 16" on center maximum if the rafter span is 30'-0". The ledger shall be the same nominal dimension as the roof rafters.
  - 2. The rafters may be placed directly on the existing top plate of the wall.
  - 3. A ledger may be fastened to the studs with  $\frac{1}{2}$ " x 5" lag screws spaced at 48" on center maximum if the rafter span is 10'-0". The ledger shall be the same nominal dimension as the roof rafters.

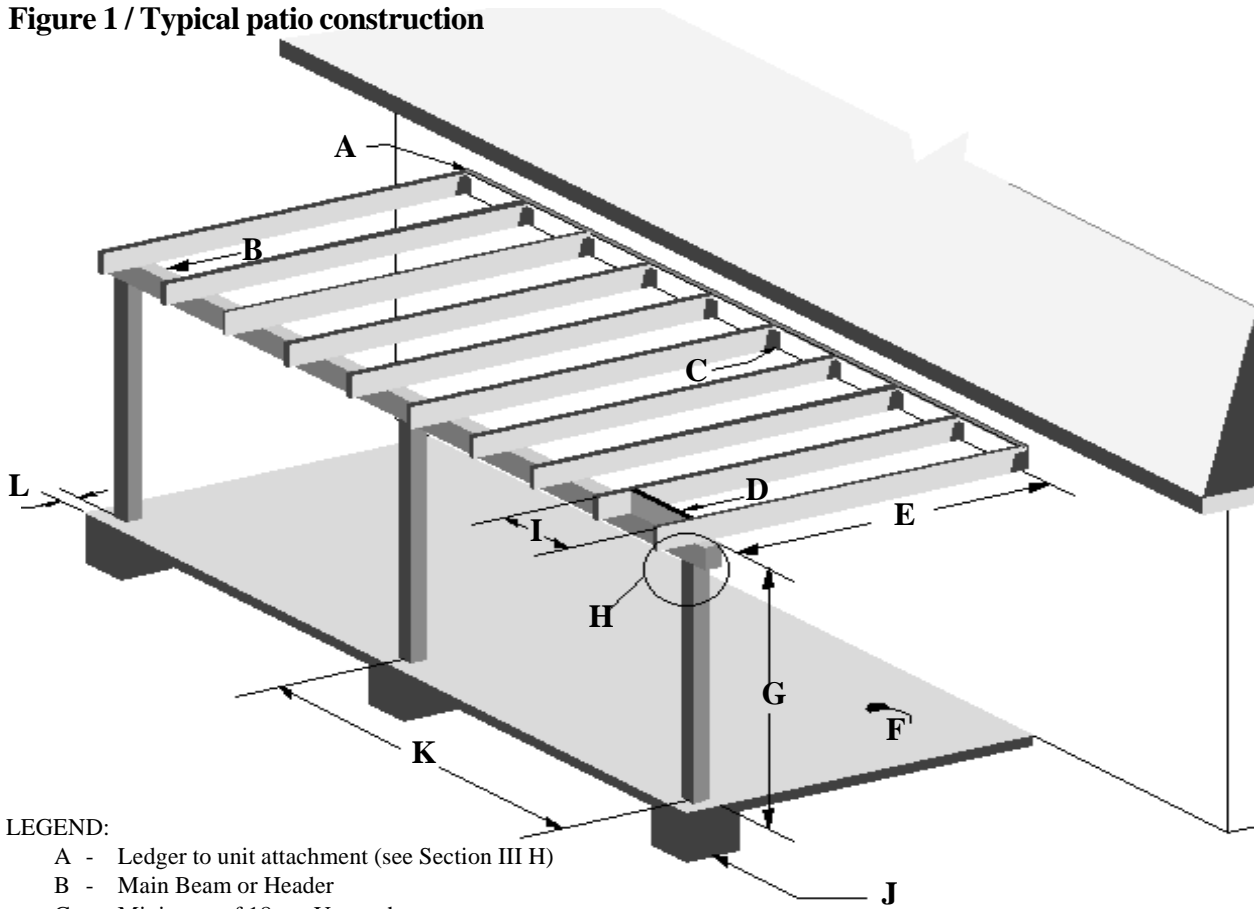
### IV. DESIGN LOADING

Patio covers are required to be designed to support all roof dead load plus a minimum vertical live load of 10 lbs/ft<sup>2</sup>. In addition, they shall also be required to be designed to resist the minimum horizontal wind loads of 10 lbs/ft<sup>2</sup>, 85 mph, lateral wind load and 7.5 lbs/ft<sup>2</sup> uplift load (for structures not more than 10 ft above ground). If the patio is proposed to be enclosed with insect screening or removable plastic panels, the structure shall be designed as if it was a fully enclosed structure in accordance with the wind design criteria contained in the CRC R301.2.1.

### V. PLAN SUBMITTAL PACKAGE:

- A. Three plot plans. (See figure #7)
- B. Two copies of a City of Chula Vista Standard Patio Cover Specifications (highlight specific design parameters); or,
- C. Two copies of an International Code Council (ICC) approved plan available from your material supplier. Delete or cross-out details not applicable

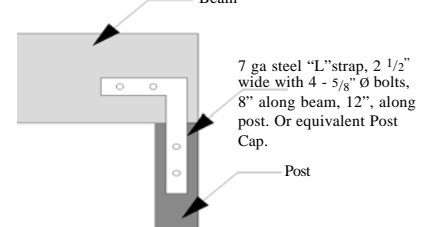
**Figure 1 / Typical patio construction**



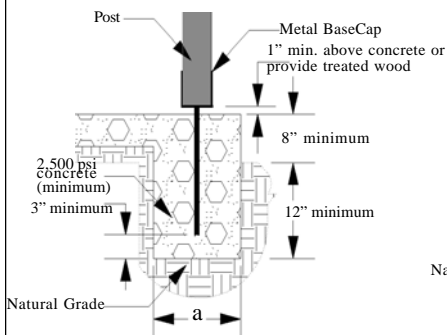
**LEGEND:**

- A - Ledger to unit attachment (see Section III H)
- B - Main Beam or Header
- C - Minimum of 18 ga. U-type hanger
- D - Continuous solid blocking between joists more than 6" in depth
- E - Rafter Span
- F - Concrete Slab
- G - 7'-0" minimum height
- H - Beam to Post connection (see Figure 4 of this page)
- I - Rafter spacing (center to center)
- J - Footing (see Footing detail illustration)
- K - Post spacing (center to center)
- L - 6" minimum distance from edge to post (typical)

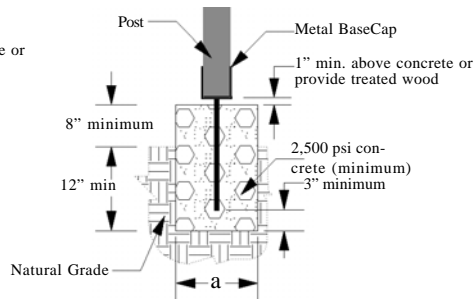
**Figure 4/ Post & Beam Connection detail**



**Figure 2/Anchor and footing detail, integrated slab**

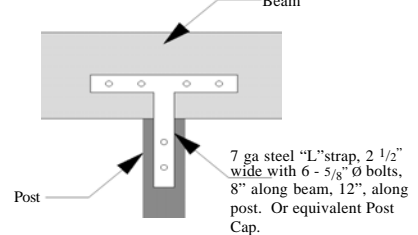


**Figure 3/Anchor and footing detail, isolated pier**



Note: Dimensions "a" are typical on all sides of the footings.

**Figure 5/Post & Beam Connection detail**



to the patio design; or,

- D. Two copies of special patio design. Specify roof covering, rafter spans, post spacings and footing details.

**VI. INSPECTIONS:**

An inspection card is issued at the time that the permit is obtained. The inspector signs the card as the construction is inspected and approved. The City of Chula Vista requires that the approved plans, Inspection Record Card and the permit be retained on the site until the final inspection has been approved. Two separate inspections are required for patio covers: 1) Footings, when footings have been excavated but before concrete is placed and; 2) When ledger beams are attached to an existing structure, and; final, when work is complete. Call (619) 409-5434 to schedule an inspection.

MINIMUM RAFTER SIZES <sup>1, 2, 3</sup>				
Rafter span (ft)	Rafter spacing (center to center)			
	12"	16"	24"	32"
6	2 x 4	2 x 4	2 x 4	2 x 4
7	2 x 4	2 x 4	2 x 4	2 x 4
8	2 x 4	2 x 4	2 x 6	2 x 6
9	2 x 4	2 x 6	2 x 6	2 x 6
10	2 x 6	2 x 6	2 x 6	2 x 6
11	2 x 6	2 x 6	2 x 8	2 x 8
12	2 x 6	2 x 8	2 x 8	2 x 8
13	2 x 8	2 x 8	2 x 8	2 x 10
14	2 x 8	2 x 8	2 x 10	2 x 10
15	2 x 8	2 x 10	2 x 10	2 x 12
16	2 x 10	2 x 10	2 x 12	2 x 12
17	2 x 10	2 x 12	2 x 12	2 x 12
18	2 x 10	2 x 12		
19	2 x 12			
20	2 x 12			

Post spacing (ft)	MINIMUM BEAM SIZES <sup>1, 2, 3</sup>							
	Rafter Span (ft)							
	6	8	10	12	14	16	18	20
4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4
6	4 x 4	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6
8	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6
10	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 8	4 x 8	4 x 8
12	4 x 8	4 x 8	4 x 8	4 x 8	4 x 8	4 x 10	4 x 10	4 x 10
14	4 x 8	4 x 10	4 x 10	4 x 10	4 x 10	4 x 12	4 x 12	4 x 12
16	4 x 10	4 x 10	4 x 12	4 x 12	4 x 12	4 x 12	4 x 14	4 x 14
18	4 x 10	4 x 12	4 x 12	4 x 14	4 x 14	4 x 14	4 x 16	4 x 16
20	4 x 12	4 x 14	4 x 14	4 x 16	4 x 16	4 x 16		

**VII. TABLES:**

The attached tables assume the following conditions:

- A. Roof live load is 10 psf
- B. Roof dead load is less than or equal to 7 psf (i.e. no concrete or clay tile).
- C. Lumber must be #2 DFL or better.
- D. Posts must be 4" x 4" minimum.
- E. Soil bearing capacity is maximum 1,000 psf.

Post spacing (ft)	MINIMUM "a" FOOTING SIZES (inches)							
	Rafter Span (ft) <sup>1, 2, 3</sup>							
	6	8	10	12	14	16	18	20
4	12"*	12"*	12"*	12"*	12"*	12"*	12"*	12"*
6	12"*	12"*	12"*	12"*	12"	12"	12"	12"
8	12"*	12"*	12"*	12"	12"	14"	15"	15"
10	12"*	12"*	12"	14"	14"	14"	15"	16"
12	12"*	12"	14"	15"	15"	16"	18"	18"
14	12"	12"	14"	15"	16"	18"	18"	20"
16	12"	14"	14"	16"	16"	18"	20"	20"
18	12"	14"	15"	18"	18"	20"	20"	22"
20	14"	14"	16"	18"	20"	20"	22"	24"

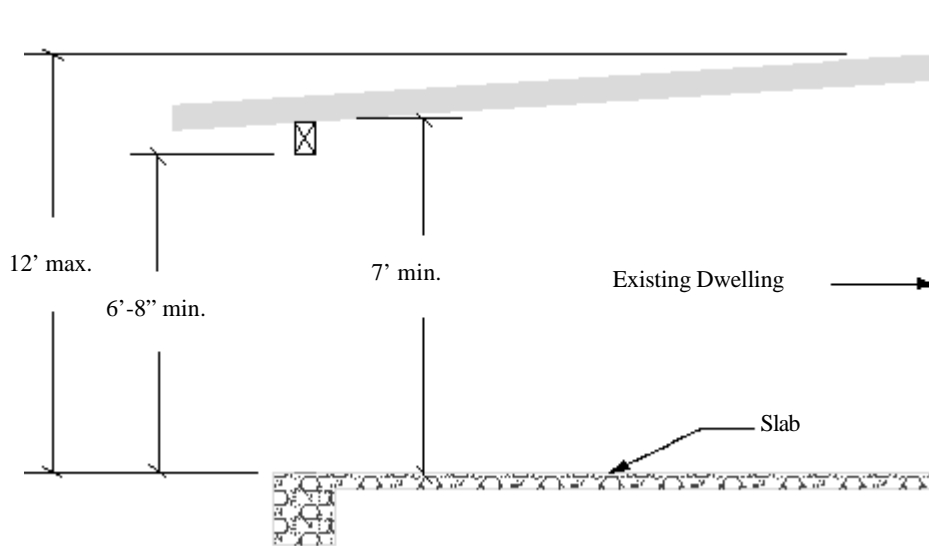
<sup>1</sup>Roof live load = 10 psf; dead load = 7 psf

<sup>2</sup>All lumber to be Douglas Fir-Larch No. 2

<sup>3</sup>Roof total load exceeding 17 psf shall be design by a California Registered Architect, Civil or Structural Engineer.

\*Post may be supported by concrete slab as stated in Section III, Item D.

**Figure 6/** Enclosed patio section

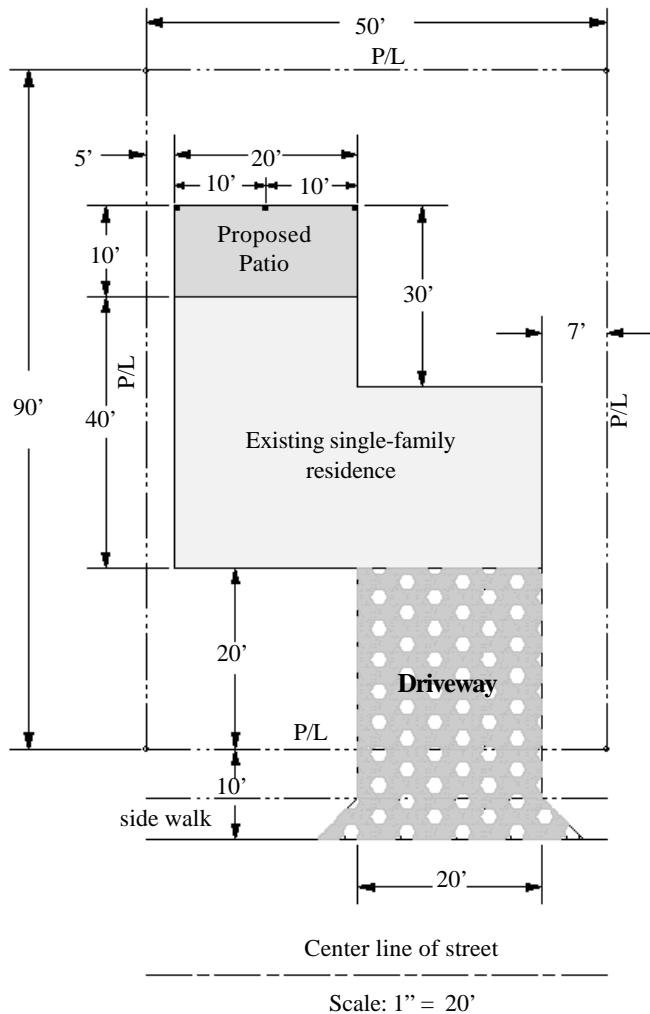


**Figure 7/** Plot Plan

Contact the Planning Division at (619) 691-5621 for yard setbacks and other requirements before drawing the plot plan.

Three copies of the plot plan are required for a permit. You must include information on each of the following items on the plot plan:

1. Name of owner.
2. Address and Assessor's Parcel Number where patio is to be built.
3. Legal description of property.
4. North arrow and scale. Suggested scale: 1" = 20'
5. Boundaries and dimensions of property.\*
6. Names of bordering streets.\*
7. Width of alley(s), if any.\*
8. Location and width of easements. Private easements should be shown on the property's deed.\*
9. Location and dimensions of existing buildings, structures, retaining walls, paved parking and driveways. Include distance from property line.
10. Location and dimensions of proposed patio. Include distance to property line.
11. Location and spacing of all posts supporting patio.
12. Existing survey hubs, pipes and similar permanently installed property line identification.



\*This information is available from Planning Division.