General

Purpose

The sample illustrations show how an attached unenclosed patio structure may be built utilizing the 2019 California Residential Code (CRC) & 2019 California Building Code (CBC) “Conventional Light Wood-Frame Construction Guidelines”. The conventional method allows “repetitive” members in the designs of walls, floors and ceiling, are prescriptive, and ordinarily do not require a structural design to comply with the code. For information regarding plan submittals and specific design limitations for residential patio covers refer to Policy & Procedure No. B-04-04 “Plan Submittal for Patio Covers and Similar Accessory Buildings” (Sheds • Arbors • Trellises).

Design Provisions

Patio Cover Limitations

The following patio cover illustrations are only applicable in residential dwellings classified as R-3 Occupancies.

Patio covers are not designed or intended to be used as room additions which require compliance with code provisions such as heating, waterproofing, and normal live and wind loads. Furthermore, patio covers cannot always be converted to complying room additions.

What information is needed to obtain a building permit?

Included in the plan submittal should be the following information which clearly depicts the proposed patio cover construction and its relationship to the entire lot. Information such as the size and spacing of all framing members; attachment detail to the exterior wall; roof covering material, connection specifications for beam to post, and for post to footing, etc.

If the patio structure consists of a simple design, please see the site plan on page 2. You may refer to the tables on pages 4 and 5 and highlight proposed structural members for allowable size & spacing. Otherwise, a structural analysis/evaluation may be required by a professional engineer licensed in the State of California for the design of structures of unusual shape and/or structures supporting tile roofing materials (i.e., cellulose, cement).

- Site Plan
- Elevation(s)
- Roof Framing
- Cross-Section
- Framing Details
**Exemption:** (2019 CBC, Section 105)
One story Detached Accessory Structures used as tool and storage sheds, playhouses, etc. 120 sq. ft. in floor area or smaller, with not more than 12-inches of overhang extending beyond the exterior wall of the structure do not require a building permit.

**Allowed Locations:**
Submitted design plans shall require review and approval by the City of Elk Grove Planning Department staff to review the Zoning Code restrictions for maximum building coverage allowed, height limitations, property line setbacks and maintenance/public utility easement setback distances prior to submitting plans.

*Setback dimension taken from post to property line(s).*
1" Standoff

Note: Roof pitch shall be a minimum 2-1/2" 12 or greater for use of composition or light weight shingle roofing materials.

Verify with Planning Department for Minimum Setback Dimensions (Fire Protection Required if Less Than 5'-0"

PROPERTY LINE

12" Minimum into Undisturbed Soil

3" Minimum Rebar Clearance

Continuous Footing w/ #4 Bars Top & Bottom (or) 12"x12" Pad Footing @ Each Post

Cross-Section
(Refer to Tables on Page 4 for Member Sizes)
ALLOWABLE SPANS FOR DOUGLAS FIR #2
ROOF RAFTERS (Table R802.4.1(1))

Dead Load = 10 psf & Includes Maximum Roofing Material
Live Load = 20 psf, L / \( \Delta \) = 180

<table>
<thead>
<tr>
<th>RAFTER SIZE</th>
<th>SPACING</th>
<th>ALLOWABLE SPAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x6</td>
<td>24&quot;</td>
<td>11'-11&quot;</td>
</tr>
<tr>
<td></td>
<td>16&quot;</td>
<td>14'-7&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>16'-10&quot;</td>
</tr>
<tr>
<td>2x8</td>
<td>24&quot;</td>
<td>15'-1&quot;</td>
</tr>
<tr>
<td></td>
<td>16&quot;</td>
<td>18'-5&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>21'-4&quot;</td>
</tr>
<tr>
<td>2x10</td>
<td>24&quot;</td>
<td>18'-5&quot;</td>
</tr>
<tr>
<td></td>
<td>16&quot;</td>
<td>22'-6&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>26'-0&quot;</td>
</tr>
<tr>
<td>2x12</td>
<td>24&quot;</td>
<td>21'-4&quot;</td>
</tr>
<tr>
<td></td>
<td>16&quot;</td>
<td>26'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>Spans 26' or greater require engineering</td>
</tr>
</tbody>
</table>

ALLOWABLE SPANS FOR DOUGLAS FIR #2
CEILING JOISTS (Table R802.5.1(2))

Dead Load = 5 psf
Live Load = 10 psf, L / \( \Delta \) = 240

<table>
<thead>
<tr>
<th>JOIST SIZE</th>
<th>SPACING</th>
<th>ALLOWABLE SPAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x4</td>
<td>24&quot;</td>
<td>9'-10&quot;</td>
</tr>
<tr>
<td></td>
<td>16&quot;</td>
<td>11'-3&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>12'-5&quot;</td>
</tr>
<tr>
<td>2x6</td>
<td>24&quot;</td>
<td>15'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>16&quot;</td>
<td>17'-8&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>19'-6&quot;</td>
</tr>
<tr>
<td>2x8</td>
<td>24&quot;</td>
<td>19'-1&quot;</td>
</tr>
<tr>
<td></td>
<td>16&quot;</td>
<td>23'-4&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>25'-8&quot;</td>
</tr>
<tr>
<td>2x10</td>
<td>24&quot;</td>
<td>23'-3&quot;</td>
</tr>
<tr>
<td></td>
<td>16&quot;</td>
<td>Spans 26' or greater require engineering</td>
</tr>
</tbody>
</table>

Type V construction is a classification of buildings by construction materials and methods. It is the least restrictive permitted by the 2019 California Residential Code (CRC) and includes light wood-frame construction. This sheet is for information and reference only and is not a substitute for accurate drawings prepared for each proposed construction project.

ALLOWABLE SPANS FOR BEAMS w/o CEILING
Based on Maximum Tributary = 10'-0" (Span = 20'-0")

<table>
<thead>
<tr>
<th>SPAN</th>
<th>BEAM SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 5'-4&quot;</td>
<td>4x4</td>
</tr>
<tr>
<td>5'-5&quot; to 7'-9&quot;</td>
<td>4x6</td>
</tr>
<tr>
<td>7'-10&quot; to 10'-6&quot;</td>
<td>4x8</td>
</tr>
<tr>
<td>10'-7&quot; to 12'-9&quot;</td>
<td>4x10</td>
</tr>
<tr>
<td>11'-7&quot; to 15'-0&quot;</td>
<td>4x12&quot;</td>
</tr>
</tbody>
</table>

*4x12 DF #1 may be used over a 16'-0" garage door in one-story open patio or carport structures.

ALLOWABLE SPANS FOR BEAMS w/ CEILING
Based on Maximum Tributary = 10'-0" (Span = 20'-0")

<table>
<thead>
<tr>
<th>SPAN</th>
<th>BEAM SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 4'-8&quot;</td>
<td>4x4</td>
</tr>
<tr>
<td>4'-9&quot; to 6'-10&quot;</td>
<td>4x6</td>
</tr>
<tr>
<td>6'-11&quot; to 9'-0&quot;</td>
<td>4x8</td>
</tr>
<tr>
<td>9'-1&quot; to 11'-0&quot;</td>
<td>4x10</td>
</tr>
<tr>
<td>11'-1&quot; to 13'-0&quot;</td>
<td>4x12&quot;</td>
</tr>
</tbody>
</table>

*For spans greater than the table values, engineered calculations are required.

Alternate Connection Detail
(Typical for Patio Covers)

Extend Roofing Min. 4" Beyond Edge of Flashing
26 GA. Galvanized Flashing Min. 4" Beyond Roof Joint
Slope (1/4"/ft)
Rolled/Torch-Down or Built-Up Roof
1/2" CDX Plywood Sheathing
2x Roof Framing
Joist Hanger
2x Ledger w/ 1/2" Dia. x 5" Long Lag Bolt @ 16" oc into Top Plate
Conventional Patio Cover

ROOFING MATERIAL
(MINIMUM CLASS "C" TYPE)
UNDERLayment

SHEATHING TYPE

ROOF SLOPE OR
PITCH

MIN. 2x OF #2 OR BETTER,
FASTENED TO EXISTING FRAMING
W/ LAG BOLTS x DIA
@ " " O.C.

RAFTER SPACING
INCHES O.C.

SOLID BLOCKING
PER CRC

POST SPACING
FEET INCHES
BEAM SIZE x INCHES
NUMBER OF POSTS

MAIN BEAM

APPROVED POST CAP
MODEL #

POST SIZE x INCHES

3 1/2" MINIMUM SLAB
THICKNESS

ANCHORAGE SHALL BE
INSTALLED PER
MANUFACTURER
MODEL #

MINIMUM FOOTING
SIZE 12"X12"X12"

CONCRETE POST PIER

APPROVED POST BASE
MODEL #

WIDTH FEET INCHES

GRADE

9"MIN

9"MIN

- REFER TO CRC FOR TYPICAL NAILING REQUIREMENTS.
- REFER TO CRC FOR ALLOWABLE PATIO ENCLOSURE CRITERIA.
- ALL CONNECTIONS TO RESIST 10 POUNDS PER SQUARE FOOT UPLIFT.
- DECAY AND/OR TERMITE PROTECTION PER CRC.
- POSTS TO BE PRESSURE TREATED OR SHALL CONFORM TO CRC.