



A Conventional Construction Guide to Covered and Uncovered Projections from One and Two Family Dwellings

The Purpose of this policy is to assist the development community and general public in obtaining a Building Permit for Covered and Uncovered projections from Single Family Dwellings. The requirements specified in this policy have been determined by the Tuolumne County Building and Safety Division to meet the intent of the Structural and Life Safety provisions of the California Code of Regulations Title 24.

The following construction methods will be allowed without Justification by Engineering Design. The following limitations shall apply to this policy:

- This policy applies to floor and roof projections that are justified to be located in Seismic Design Category “C” only, as determined by the current edition of the California Residential Code.
- This policy is valid up to a maximum ground snow load of #70 provided all aspects and limitations specified in this policy are followed.
- This policy does not remove or negate the requirement for complete building plans and details, drawn to scale, to be provided for review. The typical policy for building permit application, plan review and inner Divisional review will still apply.
- This policy does not apply to Townhouse type dwelling units.
- All structural lumber used shall only be the types listed in the following tables.
- This policy is limited to single story roof projections, single story decks and/or single story decks with a roof projection.
- Multiple tables and design aspects listed in this guide have been derived and extracted from The “Prescriptive Residential Deck Construction Guide” based on the 2012 International Residential Code (PRDCG). (© 2015 American Wood Council). The PRDCG may be referenced for design purposes however this Conventional Construction Guide to Covered and Uncovered Projections from One and Two Family Dwellings policy shall govern.

Limitations for Uncovered Decks/Floor Projections:

- Deck joist spans shall meet the requirements of the following table.

**TABLE R507.5
DECK JOIST SPANS FOR COMMON LUMBER SPECIES^f (ft. - in.)**

SPECIES ^a	SIZE	SPACING OF DECK JOISTS WITH NO CANTILEVER ^b (inches)			SPACING OF DECK JOISTS WITH CANTILEVERS ^c (inches)		
		12	16	24	12	16	24
Southern pine	2 × 6	9-11	9-0	7-7	6-8	6-8	6-8
	2 × 8	13-1	11-10	9-8	10-1	10-1	9-8
	2 × 10	16-2	14-0	11-5	14-6	14-0	11-5
	2 × 12	18-0	16-6	13-6	18-0	16-6	13-6
Douglas fir-larch ^d , hem-fir ^d , spruce-pine-fir ^d	2 × 6	9-6	8-8	7-2	6-3	6-3	6-3
	2 × 8	12-6	11-1	9-1	9-5	9-5	9-1
	2 × 10	15-8	13-7	11-1	13-7	13-7	11-1
	2 × 12	18-0	15-9	12-10	18-0	15-9	12-10
Redwood, western cedars, ponderosa pine ^e , red pine ^e	2 × 6	8-10	8-0	7-0	5-7	5-7	5-7
	2 × 8	11-8	10-7	8-8	8-6	8-6	8-6
	2 × 10	14-11	13-0	10-7	12-3	12-3	10-7
	2 × 12	17-5	15-1	12-4	16-5	15-1	12-4

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

a. No. 2 grade with wet service factor.

b. Ground snow load, live load = 40 psf, dead load = 10 psf, L/Δ = 360.

c. Ground snow load, live load = 40 psf, dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 180 at cantilever with a 220-pound point load applied to end.

d. Includes incising factor.

e. Northern species with no incising factor

f. Cantilevered spans not exceeding the nominal depth of the joist are permitted.

- Girder, Header and Rafter sizes and spans shall meet the requirements of either of the following:

1.

**TABLE R507.6
DECK BEAM SPAN LENGTHS^{a, b} (ft. - in.)**

SPECIES ^a	SIZE ^d	DECK JOIST SPAN LESS THAN OR EQUAL TO: (feet)						
		6	8	10	12	14	16	18
Southern pine	2 - 2 × 6	6-11	5-11	5-4	4-10	4-6	4-3	4-0
	2 - 2 × 8	8-9	7-7	6-9	6-2	5-9	5-4	5-0
	2 - 2 × 10	10-4	9-0	8-0	7-4	6-9	6-4	6-0
	2 - 2 × 12	12-2	10-7	9-5	8-7	8-0	7-6	7-0
	3 - 2 × 6	8-2	7-5	6-8	6-1	5-8	5-3	5-0
	3 - 2 × 8	10-10	9-6	8-6	7-9	7-2	6-8	6-4
	3 - 2 × 10	13-0	11-3	10-0	9-2	8-6	7-11	7-6
Douglas fir-larch ^a , hem-fir ^a , spruce-pine-fir ^a , redwood, western cedars, ponderosa pine ^e , red pine ^e	3 × 6 or 2 - 2 × 6	5-5	4-8	4-2	3-10	3-6	3-1	2-9
	3 × 8 or 2 - 2 × 8	6-10	5-11	5-4	4-10	4-6	4-1	3-8
	3 × 10 or 2 - 2 × 10	8-4	7-3	6-6	5-11	5-6	5-1	4-8
	3 × 12 or 2 - 2 × 12	9-8	8-5	7-6	6-10	6-4	5-11	5-7
	4 × 6	6-5	5-6	4-11	4-6	4-2	3-11	3-8
	4 × 8	8-5	7-3	6-6	5-11	5-6	5-2	4-10
	4 × 10	9-11	8-7	7-8	7-0	6-6	6-1	5-8
	4 × 12	11-5	9-11	8-10	8-1	7-6	7-0	6-7
	3 - 2 × 6	7-4	6-8	6-0	5-6	5-1	4-9	4-6
	3 - 2 × 8	9-8	8-6	7-7	6-11	6-5	6-0	5-8
	3 - 2 × 10	12-0	10-5	9-4	8-6	7-10	7-4	6-11
	3 - 2 × 12	13-11	12-1	10-9	9-10	9-1	8-6	8-1

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

a. Ground snow load, live load = 40 psf, dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 180 at cantilever with a 220-pound point load applied at the end.

b. Beams supporting deck joists from one side only.

c. No. 2 grade, wet service factor.

d. Beam depth shall be greater than or equal to depth of joists with a flush beam condition.

e. Includes incising factor.

f. Northern species. Incising factor not included.

-Table R507.6 shall be utilized to facilitate post cap to beam design or let-in beam to post design only. This table is not applicable to spandrel beams.

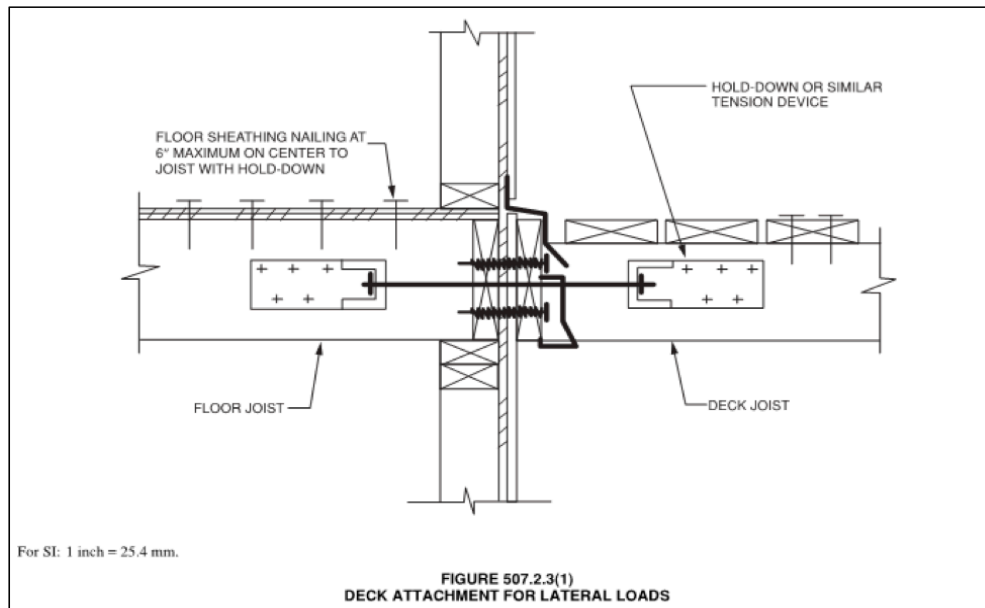
2. As an alternate to the laminated or solid sawn deck floor girder requirements of Table 507.6 the following shall be allowed:
 - i. A minimum 2"x10" Spandrel Beam with a Maximum span of 6' shall be allowed if placed on both sides of the structural column and attached in the following manner:
 1. A minimum of (2) ½" through bolts per structural attachment with washers on each end. The bolts shall be centered in the structural column.
 2. Solid 4x blocking shall be installed in-between the spandrel beam with (2) ½" through bolts and washers at spans exceeding 3' in length. (Knee Bracing may be considered blocking).
 - ii. Splices in the Spandrel member shall occur over a Column size of 6" minimum in width for bolting.
- The Column heights in all conditions shall be measured to the top of the floor projection and/or the bottom of the bearing portion of the roof rafter. Structural columns shall be limited to the following:
 - b. 8' maximum for 4"x4" column
 - c. 14' maximum for 4"x6" or 6"x6" column

*All columns using let-in girder beams shall be 6"x6" minimum regardless of height.

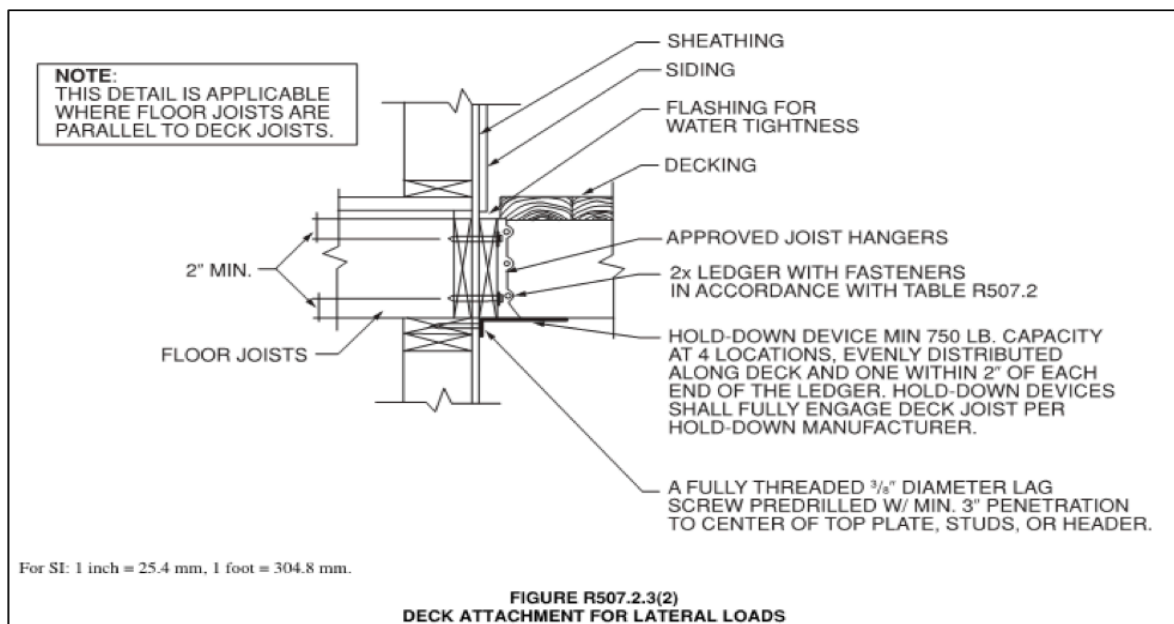
- A maximum projection of 18' from a structural building wall is allowed with a Ground Snow Load up to #50.
- A maximum projection of 10' from a structural building wall is allowed with a Ground Snow Load up to #70. All projections with a Ground Snow Load between 50# and 70# shall have Knee Braces installed regardless of the projection from a structural wall.
- Knee braces shall be installed at 45° angles and shall be installed on both sides of all structural columns for projections exceeding 10'. Knee bracing requirements shall be as follows:
 - Knee Braces shall be of the same dimension as the column being attached to.
 - Knee Braces shall be attached with (1) ½" Lag bolt at each end of the Knee Brace with a minimum 2" penetration into the supporting member OR (2) SDS or equivalent screws at each end of the Knee Brace with a minimum 2" into the supporting member.

- Lateral hold-down attachment shall be installed. Fasteners used in deck ledger connections shall be hot-dipped galvanized or stainless steel and shall be installed in accordance with the following details.

DECK ATTACHMENT FOR LATERAL LOADS

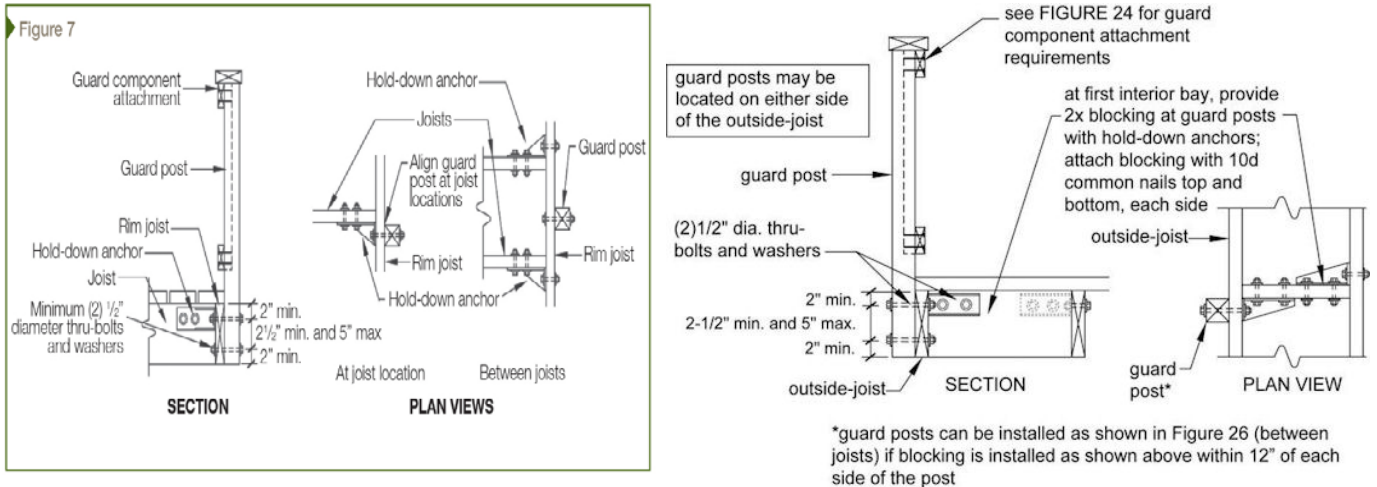


ALTERNATE DECK ATTACHMENT FOR LATERAL LOADS

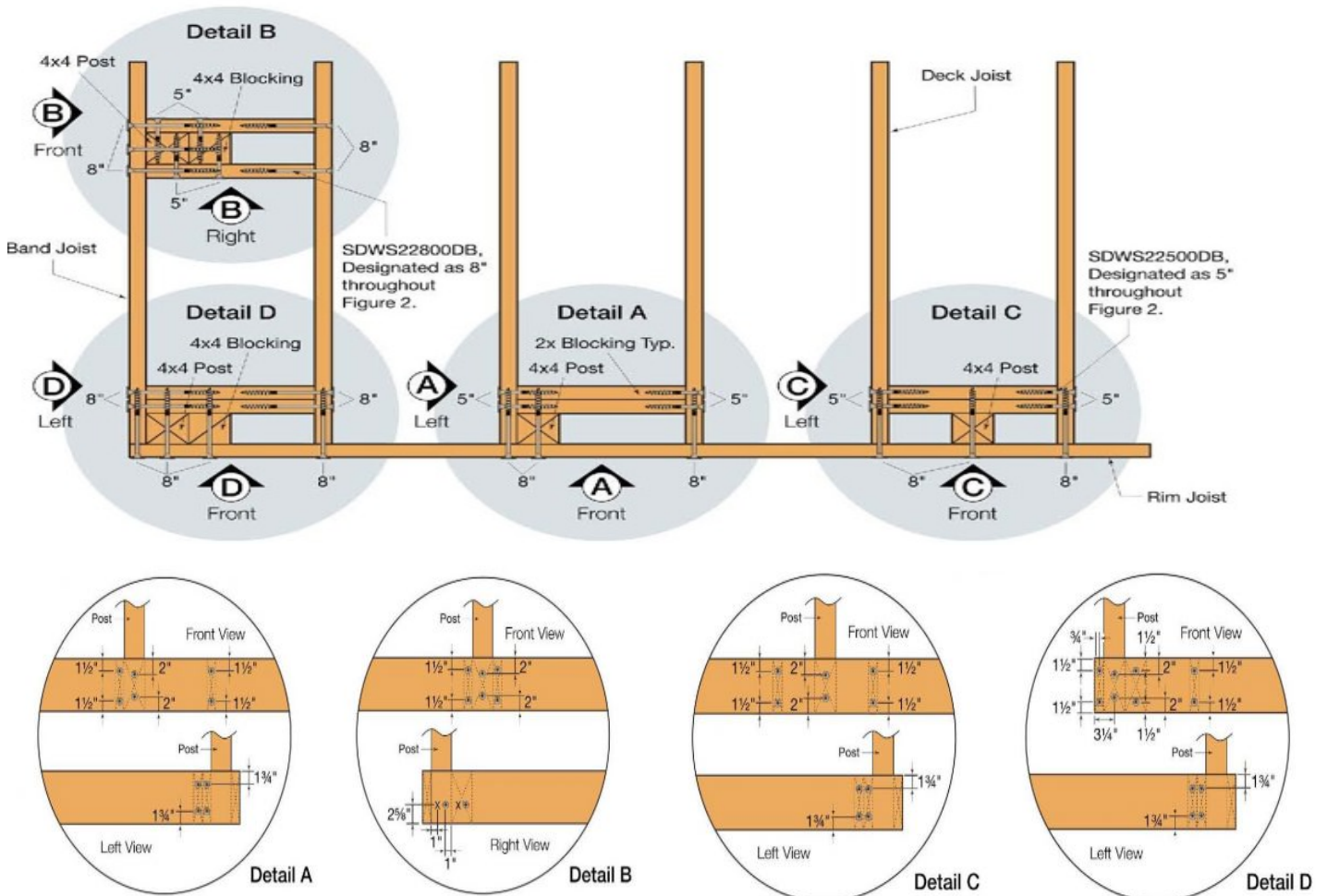


- Guard rail supports/columns shall not exceed 6' o.c. spacing. See the following details for appropriate attachment:

Option A.



Option B



➤ Ledgers shall be a minimum Pressure Treated 2"x8" nominal member and attached in the following manner:

- Bolts shall be 1/2" minimum bolts attached per the following Table:

**TABLE R507.2
DECK LEDGER CONNECTION TO BAND JOIST^{a, b}**

CONNECTION DETAILS	JOIST SPAN						
	6' and less	6'1" to 8'	8'1" to 10'	10'1" to 12'	12'1" to 14'	14'1" to 16'	16'1" to 18'
	On-center spacing of fasteners						
1/2-inch diameter lag screw with 1/2-inch maximum sheathing ^{c, d}	30	23	18	15	13	11	10
1/2-inch diameter bolt with 1/2-inch maximum sheathing ^d	36	36	34	29	24	21	19
1/2-inch diameter bolt with 1-inch maximum sheathing ^e	36	36	29	24	21	18	16

- OR Simpson® SDS or equivalent screws shall be installed per the following Table:

Loading Condition	Ledger Nominal Size (in.)	SDS Screw Length (in.)	Band Joist Material and Size	Maximum Deck Joist Span						
				Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.	Up to 18 ft.
				Maximum On-Center Spacing of Fasteners (in.)						
40 psf Live 10 psf Dead	2x	3 1/2	2" Nominal Sawn Lumber	13"	10"	8"	6"	5"	5"	4"
	2-2x3	5								
	2x	3 1/2	1" Min. Oriented Strand Board (OSB) Rim Board	12"	9"	7"	6"	5"	4"	4"
	2x	3 1/2	1 1/8" Min. Oriented Strand Board (OSB) Rim Board or 1 1/4" Min. Structural Composite Lumber	15"	11"	9"	7"	6"	5"	5"
60 psf Live 10 psf Dead	2x	3 1/2	2" Nominal Sawn Lumber	9"	7"	5"	4"	4"	3"	3"
	2-2x3	5								
	2x	3 1/2	1" Min. Oriented Strand Board (OSB) Rim Board	8"	6"	5"	4"	3"	3"	2"
	2x	3 1/2	1 1/8" Min. Oriented Strand Board (OSB) Rim Board or 1 1/4" Min. Structural Composite Lumber	10"	8"	6"	5"	4"	4"	3"

- Spread footing design shall meet the requirements of the following Table.

Table 4. Post Height for 6x6⁵ and Footing Sizes for all Posts.

Beam Span, L _B	Joist Span L _J	Post Heights ¹					Footing Sizes ²		
		Southern Pine	Douglas Fir-Larch ³	Hem-Fir ³ , Western Cedars	Redwood	Ponderosa Pine, Red Pine, SPF ³	Round Footing Diameter	Square Footing	Footing Thickness ⁴
6'	≤10'	14'	14'	14'	14'	14'	18"	16"x16"	7"
	≤14'	14'	14'	14'	14'	14'	21"	18"x18"	8"
	≤18'	14'	14'	12'	14'	11'	24"	21"x21"	10"
8'	≤10'	14'	14'	14'	14'	14'	20"	18"x18"	8"
	≤14'	14'	14'	14'	14'	11'	24"	21"x21"	10"
	≤18'	14'	13'	11'	12'	8'	27"	24"x24"	11"
10'	≤10'	14'	14'	14'	14'	12'	23"	20"x20"	9"
	≤14'	14'	13'	11'	13'	8'	27"	24"x24"	11"
	≤18'	12'	11'	8'	11'	2'	31"	27"x27"	13"
12'	≤10'	14'	14'	12'	14'	10'	25"	22"x22"	10"
	≤14'	13'	12'	9'	11'	5'	30"	26"x26"	13"
	≤18'	11'	9'	6'	9'	2'	34"	30"x30"	15"
14'	≤10'	14'	13'	11'	13'	8'	27"	24"x24"	11"
	≤14'	11'	10'	7'	10'	2'	32"	29"x29"	14"
	≤18'	9'	8'	2'	8'	NP	37"	33"x33"	16"
16'	≤10'	13'	12'	10'	12'	6'	29"	26"x26"	12"
	≤14'	10'	9'	5'	9'	2'	35"	31"x31"	15"
	≤18'	7'	5'	2'	7'	NP	40"	35"x35"	18"
18'	≤10'	12'	11'	8'	11'	2'	31"	27"x27"	13"
	≤14'	9'	8'	2'	8'	NP	37"	33"x33"	16"
	≤18'	5'	2'	2'	6'	NP	42"	37"x37"	19"

1. Assumes 40 psf live load, 10 psf dead load, L_B/4 and L_J/4 overhangs, No 2. Stress grade and wet service conditions.
2. Assumes 1,500 psf soil bearing capacity and 150 pcf concrete. Value may be multiplied by 0.9 for corner posts.
3. Incising assumed for Douglas fir-larch, hem-fir, and spruce-pine-fir.
4. Assumes 2,500 psi compressive strength of concrete. Coordinate footing thickness with post base and anchor requirements.
5. 8x8 nominal posts may be substituted anywhere in Table 4 to a maximum height of 14'.

Covered Deck or Roof Projection:

- A maximum projection of 14' from a structural building wall is allowed with a Ground Snow Load up to #70 except as noted below.
 - Gable type roof projections are limited to 10' maximum away from a structure.
- Post supporting a roof projection and a deck floor shall utilize the spandrel beam allowance of this guide to facilitate a through post design. (See spandrel beam requirements under "Limitations for Uncovered Deck/Floor Projections" above)
- Size of post no smaller than 6"x6".

- The maximum height of a covered porch shall be limited to the following.
 - 14' maximum post height from footing to bottom of covered roof beam.
 - 10' maximum from footing to deck/floor joists
 - 8' maximum from top of deck/floor to bottom of covered roof beam.

- The ledger attachments identified in the Uncovered Decks/Floor Projections portion of this policy shall be used for shed/sloping type roof projections from a structural building wall.

- Gable type roof projections shall be constructed and attached to the primary structure as required by chapter 8 of the CRC.
 - No cathedral or scissor truss design is allowed without a lateral analysis from a licensed Architect or Engineer in the State of California.
 - Gable type roof projections utilizing pre-manufactured trusses are limited to an overall length of 18'. Not to exceed 14' bearing to bearing with 2' eaves.
 - Bottom of the ceiling joist or bottom cord of truss shall be sheathed with 3/8" wood structural panel or 1/2" sheetrock or equivalent.
 - Note: Projects requiring Wildland Urban Interface features shall meet Wildland Urban Interface Standards.

- Knee braces installed at 45° angles shall be installed on both sides of all structural columns of all roof projections exceeding 6'. (See the knee bracing section under Limitations for Uncovered Deck/Floor Projections)
 - For cut and stack gable type designs a doubled roof rafter/ceiling joist design shall be provided at the gable end to allow the knee bracing to be attached in-between them. Or provide a beam under and parallel to the gable end for fastening the knee bracing to.
 - Manufactured truss gable designs shall require a beam under and parallel to the gable end for fastening the knee bracing to.

- All roof joists and beam spans shall meet the prescriptive spans provided in chapter 6 and 8 of the current edition of the CRC.

- Footing sizes supporting a covered roof and deck shall be double the size required from Table 4 located in the "Limitations for Uncovered Deck/Floor Projections" section.

**Please note that all projects of this nature that are determined to be located in Seismic Design Category "D" shall be limited to a maximum projection of 6' per CRC section 301.2.2.2.5 exception 2.

All construction methods, procedures, materials, fasteners and specifications not specifically identified in this policy shall be as required by the current and governing edition of the California Residential Code.

