



RESIDENTIAL DECKS

Information Sheet

Building Permits	Required for any deck.
Setbacks	Decks in R-1 districts typically are allowed to extend to within 10' of side, or 25' of rear lot lines, some exceptions apply. Please call Zoning Department for confirmation.
Frost Footings	Are required for any deck attached to a dwelling, porch or garage that has frost footings. The minimum dept to the base of the footing is 42".
Live Load	All decks shall be designed to support a live load of 40 pounds per square foot.
Guardrails	Required on all decks more than 30 inches above grade or a lower deck. Rail must be 36 inches minimum in height. Open guardrails and stair railings must have intermediate rails or an ornamental pattern that a four-inch sphere cannot pass through. Exception: The triangular opening formed by the riser, tread and bottom element of a guardrail may be sized so that a six-inch sphere cannot pass through.
Cantilevers "Overhanging Joists and Beams"	Joists should not overhang beams by more than two feet, nor should beams overhang posts by more than one foot unless a special design is approved.
Flashing	All connections between deck and dwelling shall be weatherproof. Any cuts in exterior finish shall be flashed.
Framing Details	Header beams and joists that frame into ledgers or beams shall be supported by approved framing anchors such as joist hangers.
Nails and Screws	Use only stainless steel, high strength aluminum or hot-dipped galvanized nails and screws.
Wood Required	All exposed wood used in the construction of decks is required to be of approved wood of natural resistance to decay (redwood, cedar, etc.) or approved treated wood. This includes posts, beams, joists, decking and railings.
Stairs	Minimum width is 36 inches. Maximum rise is 7 ¾ inches. Minimum rise is 4 inches. Minimum run is 10 inches. Largest tread width or riser height shall not exceed the smallest by more than 3/8 inch.
Handrails	The top shall be placed not less than 34 inches or more than 38 inches above the nosing of the treads. Stairways having four or more risers shall have at least one handrail. Handrail ends shall be returned or terminated in posts. The hand grips shall not be less than 1 1/4 inches or more than 2 inches in cross-sectional dimension or the shape shall provide an equivalent gripping surface. The handgrip shall have a smooth surface with no sharp corners.
Special Design Note	Some deck designs may not be appropriate should the placement of a screen porch or 3-season porch on the deck platform be a future consideration. Setbacks for porches are not the same as setbacks for decks, please check with the Zoning Department for appropriate setback requirements.

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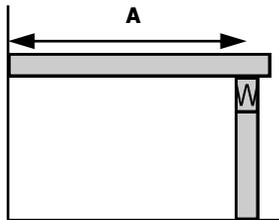
Joist Sizes									
	Ponderosa Pine			Southern Pine			Western Cedar		
Joist Size	12" OC	16" OC	24" OC	12"OC	16"OC	24" OC	12" OC	16" OC	24"OC
2x6	9-2	8-4	7-0	10-9	9-9	8-6	9-2	8-4	7-3
2x8	12-1	10-10	8-10	14-2	12-10	11-0	12-1	11-0	9-2
2x10	15-4	13-3	10-10	18-0	16-1	13-5	15-5	13-9	11-3
2x12	17-9	15-5	12-7	21-9	19-0	15-4	18-5	16-0	13-0

Sample Calculations for Using Joist Span, Beam Size and Footing Size Tables

CASE I SOLUTION:

Refer to tables for joist, beam and footing size requirements.

Example: $a = 12'$; Post Spacing = $8'$

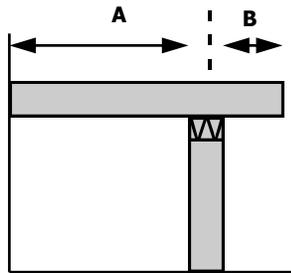


Use the **Joist Span** table to find the acceptable joist sizes for a 12' span, 2x8' at 12" on center (OC), 2x10s at 16" OC or 2x12s at 24"OC.

Use the **Beam and Footing Sizes** table and find the 8' post spacing column. With a 12' deck span, the beam may be either two 2x8s or two 2x10s, depending on wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 12", 10" or 9" for the corner post and 17", 14", or 12" for all intermediate posts.

CASE II SOLUTION:

Use "a" to determine joist size and "a" + "b" to determine beam and footing sizes. The length of "b" is restricted by both the length of "a" and the size of the joists.



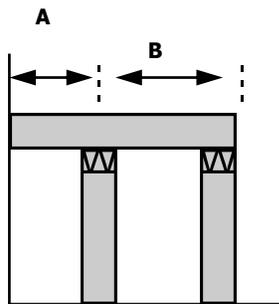
Example: $a = 8'$, $b = 2'$, Post Spacing = $10'$

Refer to the **Joist Span** table. For an 8' joist span, either 2x8s at 24" OC or 2x6s at 16"OC are acceptable.

For sizing the beam, use a joist length of 12' ($8' + 4'$) and a post spacing of 10'. The **Beam and Footing Sizes** table indicates that the beam may be either two 2x10s or two 2x12s, depending on wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 15", 12" or 11" for the corner post and 20", 17" or 15" for all intermediate posts. Note that because of the 2' cantilever all footing sizes were increased by 1" as required by footnote 2 at the end of the table.

CASE III SOLUTION:

Use "a" or "b", whichever is greater, to determine joist size. Use "a" + "b" to determine the size of Beam 1 and the post footing size for the posts supporting Beam 1. Use joist length "b" to determine both the size of Beam 2 and the post footing size for the posts supporting Beam 2.



Example: $a = 6'$, $b = 7'$, Post Spacing = $9'$

Joist size is determined by using the longest span joist (7'). The **Joist Span** table indicates that 2x6s at 24" OC would be adequate for this span.

For Beam 1 and footings, uses a joist length of 13' ($6'+7'$) and a post spacing of 9'. The **Beam and Footing Sizes** table indicates that the beam may be two 2x10s or two 2x12s, depending on the wood used. Depending on the type of soil, the footing diameters for Beam 1 posts shall be 13", 11" or 9" for the corner (outside) posts and 19", 15" or 13" for all intermediate posts. For Beam 2 and footings use a joist length of 7' and post spacing of 9'. The beam may be two 2x8s or two 2x10s, depending on wood used. Depending on the type of soil, the footing diameters for beam 2 shall be 10", 8" or 7" for the corner posts, and 14" 11" or 10" for all intermediate posts.

		POST SPACING											
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	
JOIST LENGTH	6'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x8	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x10
	6'	Corner Footing	5	6	6	7	7	7	8	8	9	9	9
		Intermediate Footing	6	8	9	9	10	10	11	12	12	13	13
	7'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	2-2x12
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	2-2x12	3-2x10	3-2x10
	7'	Corner Footing	5	6	7	7	8	8	8	9	9	10	10
		Intermediate Footing	8	8	9	10	11	11	12	13	13	14	14
	8'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12
		Ponderosa Pine Beam	1-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12
	8'	Corner Footing	6	6	7	8	8	8	9	9	10	10	11
		Intermediate Footing	8	9	10	11	11	12	13	13	14	15	15
	9'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10
		Ponderosa Pine Beam	1-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12
	9'	Corner Footing	6	7	7	8	9	9	10	10	10	11	11
		Intermediate Footing	9	10	10	11	12	13	14	14	15	15	16
	10'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10
		Ponderosa Pine Beam	1-2x6	1-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm
	10'	Corner Footing	6	7	8	8	9	10	10	11	11	12	12
		Intermediate Footing	9	10	11	12	13	14	14	15	16	16	17
11'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm	
11'	Corner Footing	7	7	8	9	9	10	11	11	12	12	13	
	Intermediate Footing	9	11	12	12	13	14	14	15	16	16	17	
12'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x10	3-2x12	
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x12	3-2x12	Eng Bm	Eng Bm	
12'	Corner Footing	7	8	9	9	10	10	11	12	12	13	13	
	Intermediate Footing	10	11	12	13	14	15	16	16	17	18	18	
13'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x8	2-2x10	2-2x12	2-2x12	2-2x12	3-2x12	3-2x12	Eng Bm	Eng Bm	
13'	Corner Footing	7	8	9	10	10	11	12	12	13	13	14	
	Intermediate Footing	10	12	13	14	15	15	16	17	18	19	19	
14'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	3-2x12	
	Ponderosa Pine Beam	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm	Eng Bm	Eng Bm	
14'	Corner Footing	8	8	9	10	11	11	12	13	13	14	14	
	Intermediate Footing	11	12	13	14	15	16	17	18	18	19	20	
15'	Southern Pine Beam	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm	
	Ponderosa Pine Beam	2-2x6	2-2x8	2-2x8	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12	Eng Bm	Eng Bm	Eng Bm	
15'	Corner Footing	8	9	10	10	11	12	12	13	14	14	15	
	Intermediate Footing	11	12	14	15	16	17	17	18	19	20	21	
16'	Southern Pine Beam	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm	
	Ponderosa Pine Beam	2-2x6	2-2x8	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12	Eng Bm	Eng Bm	Eng Bm	
16'	Corner Footing	8	9	10	11	11	12	13	13	14	15	15	
	Intermediate Footing	11	13	14	15	16	17	18	19	20	21	21	

Notes:

- Joist length is total length of joist, including any cantilevers.
- When Joist extends (cantilevers) beyond support beam by 18" or more, add 1" to footing dimensions shown.
- Requirements for future 3-season porches or screen porches:
 - Increase corner footing size shown by 90%.
 - Increase center footing size shown by 55%.
 - Locate all footings at extremities of deck (no cantilevers).
 - Beam sizes indicated need not be altered.

