



DECK INFORMATION

Updated 4/10/12

City of Robbinsdale
4100 Lakeview Ave North
Robbinsdale MN 55422

Phone: (763) 531-1268 Fax: (763) 531-1200

Email; permits@ci.robbinsdale.mn.us

Website; www.robbinsdalemn.com

Please submit the following information in addition to the building permit application:

1. **Survey or Site Plan:** Two copies of an as-built survey and/or scale drawing showing:

- a) Lot size and all adjacent streets
- b) Exact location and dimensions of all existing and proposed building on the lot.
- c) Corner monuments (to the satisfaction of building inspector).

If near a flood plain - elevations must be shown on a survey.

2. **Building Plans** (two sets):

A. Section drawing (side, cutaway drawing) showing the footing width and thickness, post size, joist size, beam size, decking, height above grade, guardrail, cantilevers (overhang), anchoring, flashing, connectors and hanger types, include grade and species of lumber, and

B. Floor Plans of the deck showing the length and width of the deck, beam location, post spacing, joist spacing, stair location and type of lumber (pressure treated, redwood, cedar, etc.).

Building permits will not be granted for the erection of any building or structure upon land which is not platted and described as a lot or a tract of a registered land survey, except as provided in Section 16-04 of the City Code. Building permits will not be granted on any lot that does not abut upon a public street.

Setbacks: Decks shall be setback five 5 feet from the side property line and shall be setback 20% of the lot depth from the rear property line. Decks which are no higher than 30 inches may extend nearer than 10 feet into any required yard provided they do not extend nearer than 20 feet from any front property line and five feet from any side or rear property line. Decks may not be installed over any utility easement. Decks may not be installed in front yards. A 15 foot side setback is required for corner lots.

Electrical: Wires must be 10' above deck surface in any direction.

Special Design Note: Some designs may not be appropriate if a future porch, addition or hot tub is intended to be installed on the deck. Footings, beams and joists should be sized for all future loads.

Footings/Posts: Footings must be a minimum 42 inches below final grade. The base of the footing must be wide enough to transfer the weight of the deck to the soil [determine minimum footings sizes from tables]. Posts must be pressure treated, redwood, cedar, concrete or other approved material. Future three-season or screen porches will require larger support footings. Adding of a porch or roof should be a future consideration at the time of permit applications.

Wood Required: All exposed wood used in the construction of decks is required to be of an approved wood with natural resistance to decay (redwood, cedar, etc.) or an approved treated wood. This includes posts, beams, joists, railings and decking (entire deck).

Live Load: All deck floor systems shall be designed to support a live floor load of 40 pounds per square foot. An additional 40 pound loading design is required for the post, beams and footings when covered by a roof system.

Floor Joists: Floor joists spacing at 24 inches on center requires 2 x decking. Floor joist spacing at 16 inches on center permits 1 x decking. Joists on overhanging decks 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. Cantilevered decks (no post support) may require an engineered design.

Joist Hangers: Header joists of more than six (6) feet long and tail joists over 12 feet long shall be supported by approved framing anchors such as joist hangers. When constructed by use of face joist method it shall be lag bolted at 16 inches on center spacing to the structural members of structure. Roofing nails shall not be used in joist hangers. Nails shall be hot dipped galvanized or stainless steel. Joist hangers shall be approved for contact with treated wood such as triple galvanized hangers.

Framing: The joists and beams must be sized to support a 40lb per sq ft live load

Flashing: All connections between deck and dwelling shall be weatherproof. Any cuts in exterior finish shall be flashed or caulked.

Stairs/Residential: The minimum width of a stairway is 36" inches in width. The maximum rise on stairs is 7 ¾". The minimum run of the treads is 10." A handrail is required on all stairs with four or more risers. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4-inch-diameter sphere.

Handrails: A handrail is required on one side of a stairs with four or more risers. The handrail must be 34" to 38" high, be continuous and uninterrupted the full length of the stairs. The handgrip portion of the handrail shall be not less than 1-1/4 " nor more than 2-5/8" in diameter. The ends of the handrail shall be returned or terminate in a newel post or safety terminal.

Guard: Residential decks 30" or more above adjacent grade must be protected by a guard with a minimum height of 36". Open guardrails shall have intermediate rails or ornamental pattern such that a 4" (four inch) sphere cannot pass through.

THE FOLLOWING INFORMATION WAS WRITTEN AS A GUIDE TO THE MOST COMMON QUESTIONS AND PROBLEMS. IT WAS NOT INTENDED NOR SHALL IT BE CONSIDERED A COMPLETE SET OF REQUIREMENTS. (These requirements may change without notice):

JOIST SPAN

	Ponderosa Pine			Southern Pine			Western Cedar		
	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

OC = on center

Based on No. 2 or better wood grades (Design Load + 40# LL + 10# DL, Deflection = L/360)

BEAM AND FOOTING SIZES

POST SPACING

Floor Joists		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
		6'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2- 2x6	2-2x6	2-2x6	2-2x8	2-2x8	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
Corner Footing	6 5 4		7 6 5	7 6 5	8 7 6	9 7 6	9 7 6	10 8 7	10 8 7	10 9 7	11 9 8	11 9 8
Intermediate Footing	9 8 7		10 8 7	10 9 7	11 9 8	12 10 9	13 10 9	14 11 10	14 12 10	15 12 10	15 13 11	16 13 11
7'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2- 2x6	2-2x6	2-2x8	2-2x8	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
	Corner Footing	7 5 5	7 6 5	8 7 6	9 7 6	9 8 7	10 8 7	10 8 7	11 9 8	11 9 8	12 10 9	12 10 9
	Intermediate Footing	9 8 7	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	15 13 11	16 13 11	17 14 12	17 14 12

BEAM AND FOOTING SIZES (continued)

POST SPACING

Floor Joists		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	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
	Corner Footing	7 6 5	8 6 6	9 7 6	9 8 7	10 8 7	10 8 7	11 9 8	11 9 8	12 10 9	13 10 9	13 11 9
	Intermediate Footing	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	16 13 11	16 13 12	17 14 12	18 15 13	18 15 13
9'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	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
	Corner Footing	7 6 5	8 7 6	9 7 6	10 8 7	10 9 7	11 9 8	12 10 8	12 10 9	13 10 9	13 11 9	14 11 10
	Intermediate Footing	10 9 7	12 10 8	13 10 9	14 11 10	15 12 10	16 13 11	17 14 12	17 14 12	18 15 13	19 15 13	20 16 14
10'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x10
	Ponderosa Pine Beam	1-2x6	1-2x6	2-2x8	2-2x8	2-2x10	2x2x10	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm
	Corner Footing	8 6 6	9 7 6	10 8 7	10 8 7	11 9 8	12 10 6	12 10 9	13 11 9	14 11 10	14 12 10	15 12 10
	Intermediate Footing	11 9 8	12 10 9	14 11 10	15 12 10	16 13 11	17 14 12	17 14 12	18 15 13	19 16 14	20 16 14	21 17 15
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
	Corner Footing	8 7 6	9 7 6	10 8 7	11 9 8	12 9 8	12 10 9	13 11 9	14 11 10	14 12 10	15 12 10	15 13 11
	Intermediate Footing	12 9 8	13 11 9	14 12 10	15 12 10	16 13 11	17 14 12	17 14 12	18 15 13	19 16 14	20 16 14	21 17 15
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
	Corner Footing	9 7 6	10 8 7	10 9 7	11 9 8	12 10 9	13 10 9	14 11 10	14 12 10	15 12 10	15 13 11	16 13 11
	Intermediate Footing	12 10 9	14 11 10	15 12 10	16 13 11	17 14 12	18 15 13	19 16 14	20 16 14	21 17 15	22 18 15	23 18 16
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
	Corner Footing	9 7 6	10 8 7	11 9 8	12 10 8	13 10 9	13 11 9	14 12 10	15 12 10	15 13 11	16 13 11	17 14 12
	Intermediate Footing	13 10 9	14 12 10	15 13 11	17 14 12	18 15 13	19 15 13	20 16 14	21 17 15	22 18 15	23 19 16	24 19 17
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
	Corner Footing	9 8 7	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	15 13 11	16 13 11	17 14 12	17 14 12
	Intermediate Footing	13 11 9	15 12 10	16 13 11	17 14 12	18 15 13	20 18 14	21 17 15	22 18 15	23 18 16	24 19 17	24 20 17

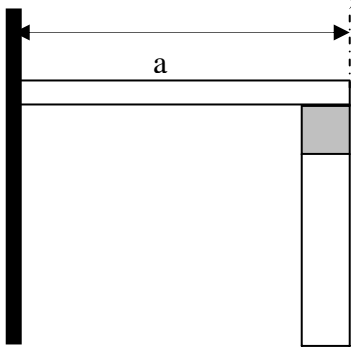
BEAM AND FOOTING SIZES (continued)

Floor Joists		POST SPACING										
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
15'	Southern Pine Beam	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	3-2x12	3-2x10	3-2x12	3-2x12	Eng Bm
	Ponderosa Pine Beam	2-2x6	2-2x8	2-2x 8	3-2x10	3-2x10	3-2x10	3-2x12	3-2x12	Eng Bm	Eng Bm	Eng Bm
	Corner Footing	10 8 7	11 9 8	12 10 8	13 10 9	14 12 10	14 12 10	15 12 11	16 13 11	17 14 12	17 14 12	18 15 13
	Intermediate Footing	14 11 10	15 12 11	17 14 12	18 15 13	19 16 14	20 17 14	21 17 15	22 18 16	23 19 17	24 20 17	25 21 18
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
	Corner Footing	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	16 13 11	16 13 12	17 14 12	18 15 13	18 15 13
	Intermediate Footing	14 11 10	16 13 11	17 14 12	18 15 13	20 16 14	21 17 15	22 18 16	23 19 16	24 20 17	25 21 18	26 21 18

- NOTE:** 1) The joist length is the total length of joist, including any cantilevers.
 2) When planning for the construction of a future 3-season porch or screen porch;
 a. Increase the corner footing sizes shown by 90%
 b. Increase the center footing sizes shown by 55%
 c. Locate all the footings at the extremities of the deck for calculation with tables (include cantilevers)
 d. The indicated beam sizes do not need to be altered
 e. All footing sizes above are base diameters (in inches) and are listed for *three* soils types; clay, sand and gravel respectively.

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

CASE I SOLUTION



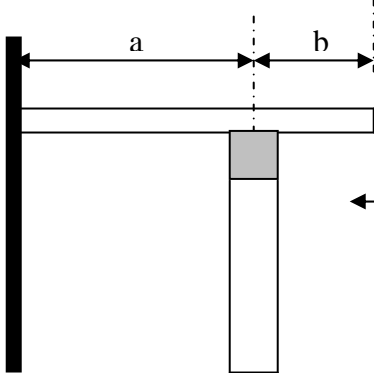
Refer to tables for joist, beam, and footing size requirements.

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

Use the "Joist Span" table to find the acceptable joist sizes for a 12' span, 2 x 8s at 12" O.C., 2 x 10s at 16" O.C., or 2 x 12s at 24" O.C.

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 2 x 8s, or 2 x 10s depending on the 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



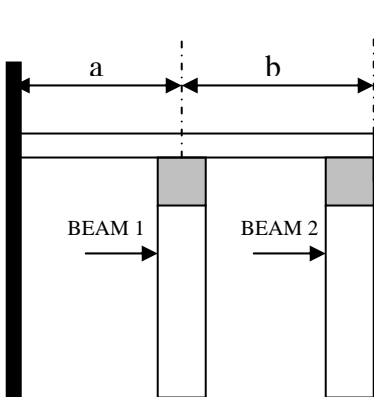
Use "a" to determine joist size and "a" + "b" to determine beam and footing sizes. The length of "b" is restricted by both the length of "a" and the size of the joists.

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

Refer to the "Joist Span Table". For an 8' joist span, either 2 x 8's at 24" O.C. or 2 x 6s at 16" O.C. are acceptable.

For sizing the beam, use a joist length of 10' ($8' + 2'$) and a post spacing of 10'. The "Beam and Footing Sizes" table indicates that the beam may be either two 2 x 10s or two 2 x 12's, depending on wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 13", 11", or 10" for the corner post and 18", 15", or 13" 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 footings size for the posts supporting Beam 2.

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

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 footings 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 2 x 6's at 24" O.C. would be adequate for this span.

For Beam 1 and footings, use a joist length of 13' ($6' \times 7'$) and a post spacing of 9'. The "Beam and Footing Sizes" table indicates that the beam may be two 2 x 10's or two x 12's, 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) post 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 footing diameters of Beam 2 shall be 10", 8", or 7" and 14", 11", or 10" for all intermediate posts.

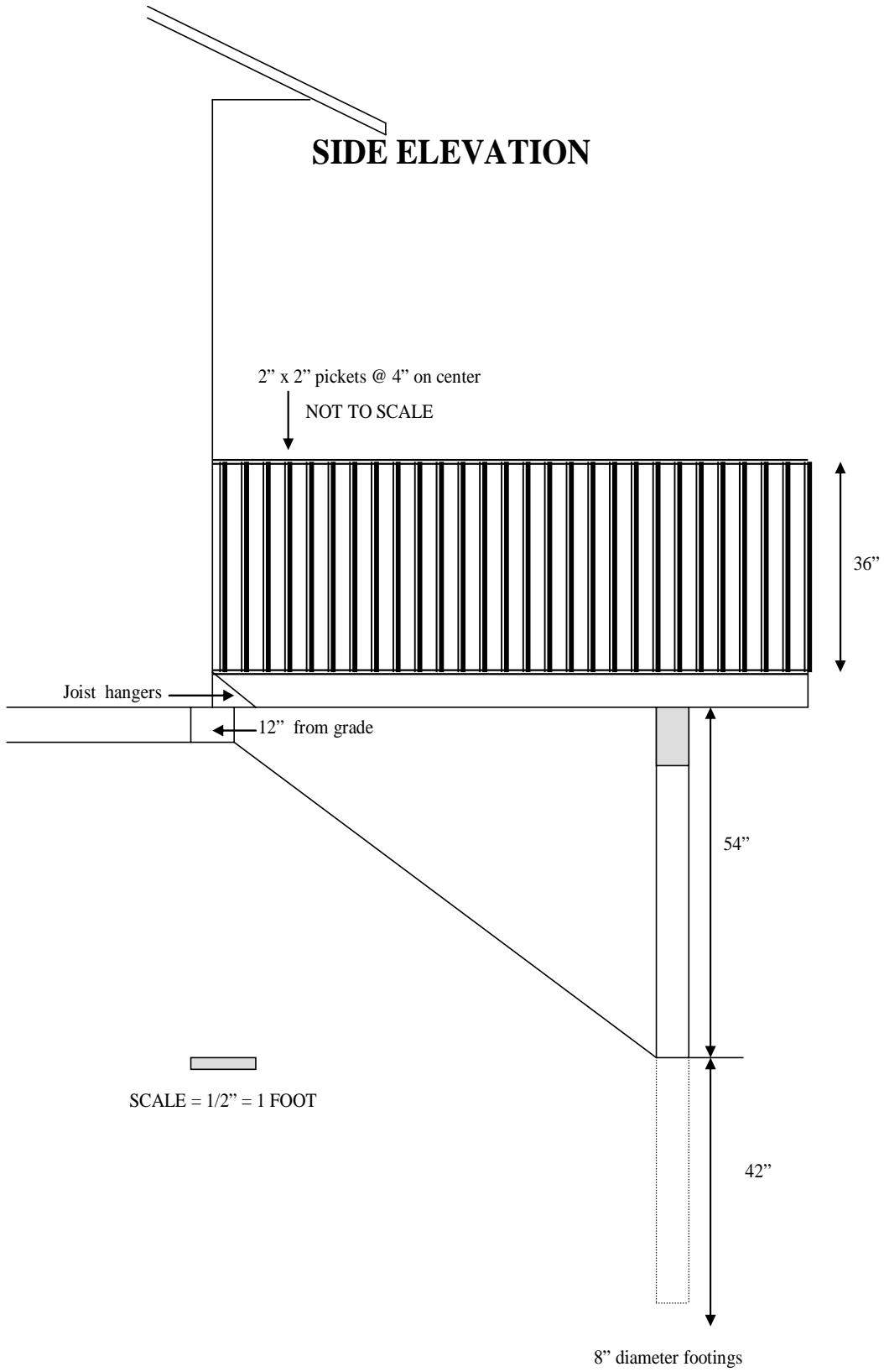
Residential Plan Review Guide for Round Footing Sizing

Footing Sizes	Footing Area	Footing Area	Required (Min.) Soil Load Bearing Capacity (PSF)					
			Total Column Loading					
Dia. Inches	Footing Sq. In.	Footing Sq. Ft.	1000 PSF	1500 PSF	2000 PSF	2500 PSF	3000 PSF	
8" Footing Thickness	8	50.27	0.35	349	524	698	873	1047
	9	63.62	0.44	442	663	884	1104	1325
	10	78.54	0.55	545	818	1091	1364	1636
	11	95.03	0.66	660	990	1320	1650	1980
	12	113.10	0.79	785	1178	1571	1964	2356
	13	132.73	0.92	922	1383	1844	2304	2765
	14	153.94	1.07	1069	1604	2138	2673	3207
	15	176.72	1.23	1227	1841	2454	3068	3682
	16	201.06	1.40	1396	2094	2793	3491	4189
	10" Ftg	17	226.98	1.58	1576	2364	3153	3941
18		254.47	1.77	1767	2651	3534	4418	5301
19		283.53	1.97	1969	2953	3938	4922	5907
20		314.16	2.18	2182	3273	4363	5454	6545
12" Footing Thickness	21	346.36	2.41	2405	3608	4811	6013	7216
	22	380.13	2.64	2640	3960	5280	6600	7919
	23	415.48	2.89	2885	4328	5771	7213	8656
	24	452.39	3.14	3142	4712	6283	7854	9425
	25	490.88	3.41	3409	5113	6818	8522	10227
	26	530.93	3.69	3687	5531	7374	9218	11061
	27	572.56	3.98	3976	5964	7952	9940	11928
	28	615.75	4.28	4276	6414	8552	10690	12828
	29	660.52	4.59	4587	6880	9174	11467	13761
	14" Footing	30	706.86	4.91	4909	7363	9818	12272
31		754.77	5.24	5241	7862	10483	13104	15724
32		804.25	5.59	5585	8378	11170	13963	16755
33		855.30	5.94	5940	8909	11879	14849	17819
34		907.92	6.31	6305	9458	12610	15763	18915
35		962.12	6.68	6681	10022	13363	16703	20044
306		1017.8	7.07	7069	10603	14137	17672	21206

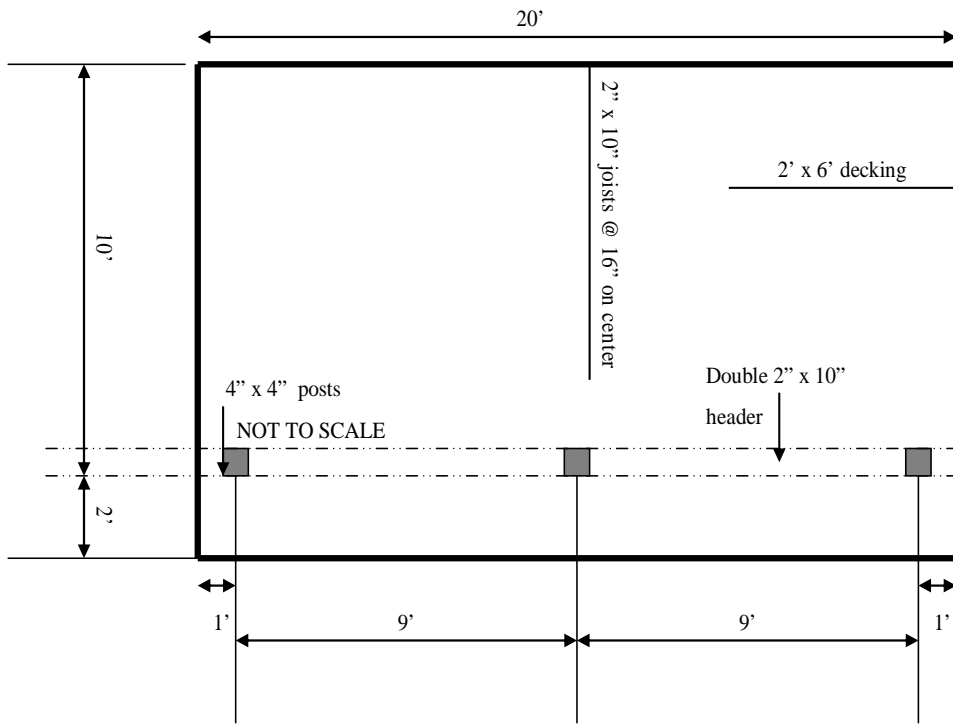
Shaded total load numbers may require special column types or sizes and/or addition footing steel reinforcement.

NOTE: This table should only be used as a guide for establishing round column pad sizes. When the actual column type, size, and total loading has been determined, each column footing condition should be reviewed to determine the required round column pad size and thickness. Although actual concrete compressive strength (PSI) may vary, it is assumed that at a minimum, plain structural concrete (2500 PSI) will be used for column footings sized herein. Soil types and bearing capacities must also be verified at each site. Consult with the Building Official prior to using this table.

SIDE ELEVATION



DECK FLOOR PLAN



SCALE : 1/2" = 2'

