



Residential Decks

City of Prior Lake Requirements

BUILDING PERMITS: This handout intends to provide information on the minimum requirements applicable to the construction of a deck, whether attached to or detached from a residential dwelling. The Zoning Ordinance requires the issuance of a building permit prior to the construction of an attached or detached deck that is 30 inches or more above grade at any point within 5 feet of the perimeter of the deck. Decks and platforms not more than 30 inches above adjacent grade and not attached to a structure with frost footings do not require a building permit. Please contact the Building Department at 952.447.9850 or Planning Department at 952.447.9810 for information on your specific project.

SUBMITTALS FOR PERMIT:

- Signed completed building permit application form
- Two (2) copies of the deck plan, drawn to scale, indicating all structural members and footing size
- Two (2) copies of a Certificate of survey with the deck drawn on it to scale. An existing certificate of survey may be used if all existing buildings, property lines, setback hubs, and easements are shown. The existing survey must be signed by a registered land surveyor. A current and updated survey may be required if additional information is needed to determine ordinance compliance such as yard setbacks, bluff setback, OHW setback, etc.

If a survey is not available the owner may complete a Request for Waiver of Survey. A Request for Waiver of Survey is applicable to new decks only and requirements include:

- Owner must provide evidence of property boundaries
- Owner must provide accurate, to-scale site plans which show setbacks, existing structures, dimensions, distance from lot lines, and to-scale proposed deck
- Owner must complete waiver request form and pay \$50 processing fee

The owner may elect to replace the existing deck with an **exact** replacement. By utilizing the replacement deck option, current setbacks are not required to be met. The replacement deck must be drawn on the existing survey to scale and must meet IBC requirements. The location and size of existing deck must be verified by City staff.

ZONING CODE REQUIREMENTS

MINIMUM SETBACKS: The Zoning Ordinance requires that decks maintain the following minimum setbacks in the R-1, R-2, and R-3 use districts:

- ❑ Front: 25 feet
- ❑ Side: 10' feet¹
- ❑ Rear: 25 feet

- ❑ Shoreland: 75 feet²
- ❑ Wetland: 30 feet
- ❑ Bluff: Minimum 25 feet³

Replacement decks that do not meet the minimum required setbacks may be replaced provided the deck: (1) existed on May 1, 1999, (2) is (a) the same size and (b) location, (c) constructed of wood, and (d) not covered, and (3) not located within an easement, the public right-of-way or over a property line. In lieu of a survey a site plan may be accepted. A Site Plan is a to-scale plan showing setbacks, existing structures, dimensions, distance from lot lines and the proposed replacement deck.

ADDITIONAL ZONING INFORMATION: Decks with ¼ inch floorboard spacing are not considered impervious surface under the shoreland ordinance.

¹Non-conforming lots of record in the R-1 and R-2 use districts may have a reduced setback, but no less than 5 feet. See Section 1101.502 (8).

²Shoreland ordinance permits the use of the average setback of those properties within 150 feet, but setback can be no less than 50 feet. See Section 1104.308 (2).

³Bluff setback is the upper end of a segment at least 25 feet in length having an average slope less than 18 percent.

BUILDING CODE REQUIREMENTS

The International Building Code provides the following standards for the construction of a deck requiring a permit.

FROST FOOTINGS: Required for any deck attached to a dwelling, porch or garage that has frost footings. The minimum depth to the base of the footing is 42”.

LIVE LOAD: All decks shall be designed to support a live load of forty (40) pounds per square foot.

GUARDS: Required on all decks more than thirty (30) inches above grade or higher deck. Guardrails must be thirty-six (36) inches minimum in height. Open guardrails and stair railings must have intermediate rails or an ornamental pattern that a four (4) inch sphere cannot pass through.

CANTILEVERS “OVERHANGING JOISTS AND BEAMS”: Joists should not overhang beams by more than two (2) feet, nor should beams overhang posts by more than one (1) foot unless a special design is approved.

FLASHING: All connections between deck and dwelling shall be weatherproof. Flashing is required for all ledger boards.

FRAMING DETAILS: Header beams and joists over six (6) feet long that frame into ledgers or beams shall be supported by approved framing anchors such as joist hangers or beam hangers.

NAILS & SCREWS: Use only stainless steel, high strength aluminum or hot-dipped galvanized.

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 thirty-six (36) inches. Maximum rise is eight (8) inches, minimum rise is four (4) inches. Minimum run is nine (9) inches. Largest tread width or riser height shall not exceed the smallest by more than *3/8 inch*. Open risers are permitted, provided opening between treads does not permit the passage of a four (4) inch sphere.

HANDRAILS: The top shall be placed not less than thirty-four (34) inches or more than thirty-eight (38”) inches above the nosing of the treads. Stairways having four (4) or more risers shall have at least one (1) handrail. Handrail ends shall be returned or terminated in posts. The hand grips shall not be less than 1 1/2 inches or more than two (2) inches in cross-sectional dimension or the shape shall provide an equivalent gripping surface. The handgrip shall have a smooth surfaced with no sharp corners.

SPECIAL DESIGN NOTE: Some deck designs may not be appropriate should the placement of a screen porch or three (3) season porch on the deck platform be a future consideration. Also special design provisions may be needed for decks being supported by cantilevered floor joist systems.

LEDGER BOARD: Secure ledger board with two (2) 3/8 inch lag screws or equal to support 480# per linear foot and fastened to structural members sixteen (16”) inches on center.

✱ IMPORTANT ✱

Attaching a Deck to a Bay Cantilever

Many bay cantilevered areas have not been designed to support an attached deck. Whenever a cantilevered bay exists, it must be determined if the original design was built to support a deck. If the cantilevered area was not reinforced, alternate methods may be used. Inspector to verify at footing inspection, owners must be present.

REQUIRED INSPECTIONS:

1. **Footings:** After the holes are dug, but **PRIOR TO POURING CONCRETE!!**
2. **Framing,** when less than 30” high and prior to deck board placement.
3. **Final:** When the structure has been completed.

GENERAL NOTES:

1. The stamped, approved plans and survey shall be kept on the job until the final inspection has been made.
2. The Inspection Record Card shall be placed on the outside exterior wall near the deck and shall remain posted until the final inspection has been made.
3. Call 952.447.9850 between 8:00 a.m. and 4:30 p.m. to arrange for an inspection.
4. Prior to digging, call Gopher State One Call at 651.454.0002 to verify utility locations. Forty-eight (48) hour notice is required, excluding weekends and holidays.

ALLOW 24 HOURS FOR ALL INSPECTIONS!!

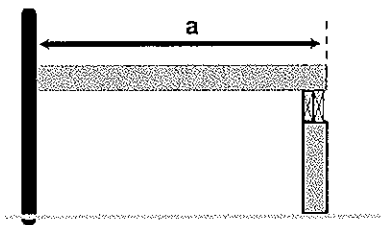
Joist span

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

	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

Sample calculations for using joist span, beam size and footing size tables

CASE I SOLUTION:



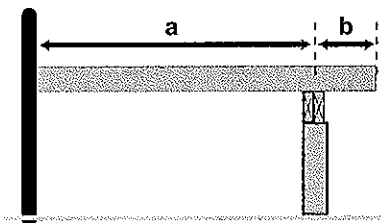
Refer to tables for joist, beam and footing size requirements.

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

Use the **joist span** table to find the acceptable joist sizes for a 12' span, 2x8s at 12" O.C., 2x10s at 16" O.C. or 2x12s 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 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:



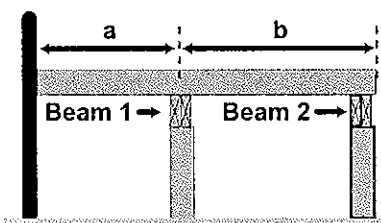
Use "a" to determine joist size and "a" + "2b" to determine beam and footing sizes. The length of "b" is restricted by both the length of "a" and the size of the joists.

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

Refer to the **joist span** table. For an 8' joist span, either 2x8s at 24" O.C. or 2x6s at 16" O.C 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" O.C. would be adequate for this span.

For Beam 1 and footings, use 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) 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 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.

Beam and footing sizes

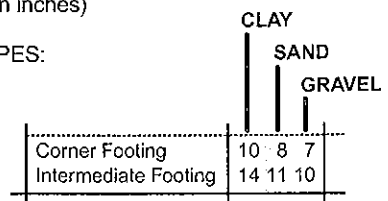
Based on No. 2 or better Ponderosa Pine and Southern Pine
(Treated for weather and/or ground exposure)

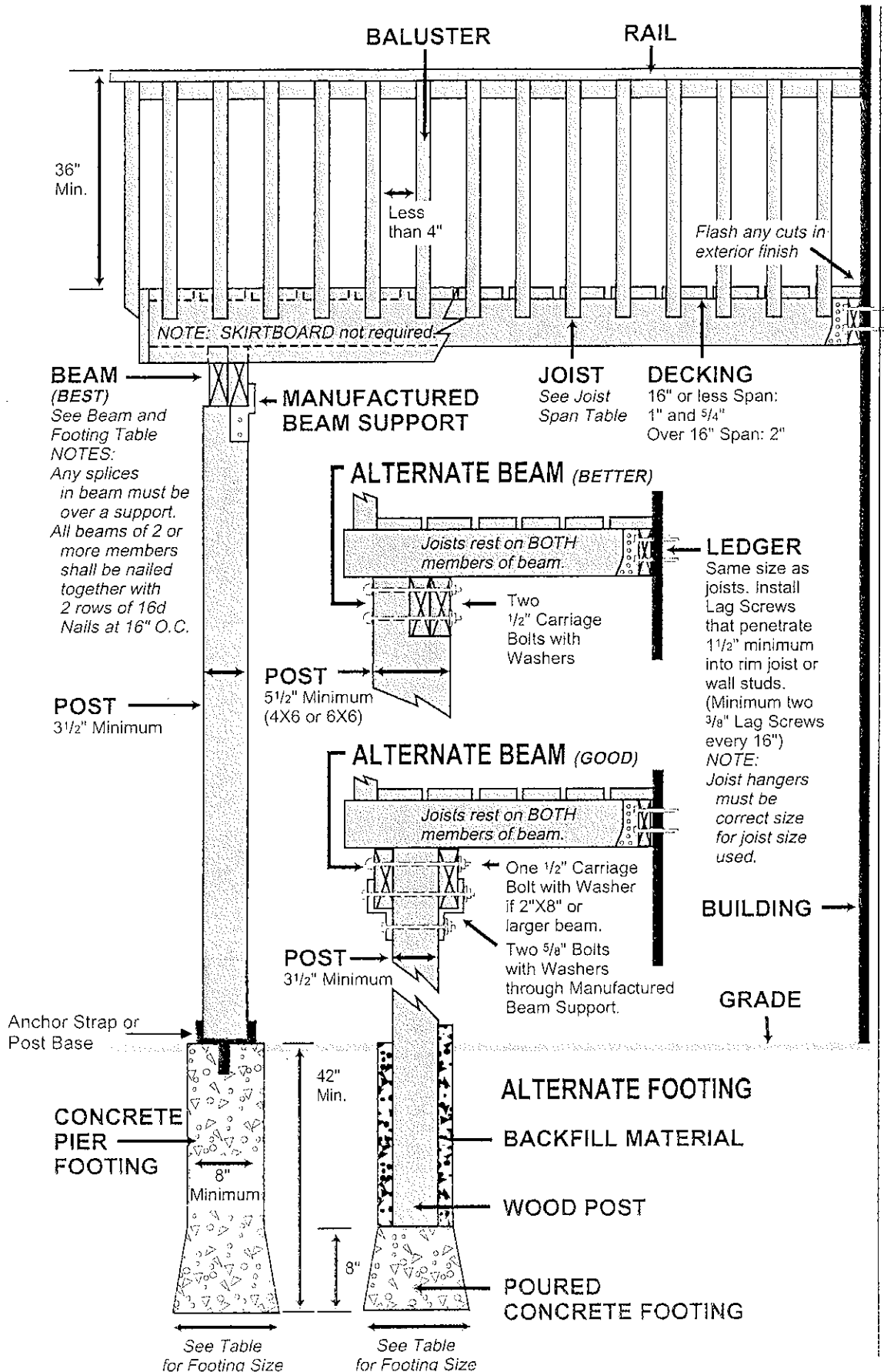
		Post spacing														
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'				
Joist Length	6'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	2-2x10	2-2x10	2-2x10
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x8	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	2-2x12	2-2x12	2-2x12	2-2x12	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 8 7	10 9 7	11 9 8	11 9 8	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	15 13 11	16 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	2-2x10	2-2x12	2-2x12
	Ponderosa Pine Beam		1-2x6	1-2x6	1-2x8	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	2-2x12	3-2x10	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	11 9 8	12 10 9	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	17 14 12	17 14 12
		8'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	2-2x12	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	3-2x10	3-2x12	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	11 9 8	12 10 9	13 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	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	2-2x10	2-2x12	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	3-2x10	3-2x12	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 8	12 10 9	13 10 9	13 11 9	14 11 10	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	19 15 13	20 16 14	20 16 14	
	10'	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	3-2x10	Eng Bm	
Ponderosa Pine Beam		1-2x6	1-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12	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 8	12 10 8	12 10 9	13 11 9	14 11 10	14 12 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	20 16 14	21 17 15	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	3-2x10	3-2x12	Eng Bm	
Ponderosa Pine Beam		2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	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 12 10	15 13 11	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	20 16 14	21 17 15	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	3-2x10	3-2x12	Eng Bm	
Ponderosa Pine Beam		2-2x6	2-2x6	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm	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 12 10	16 13 11	16 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	22 18 15	23 18 16	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	3-2x10	3-2x12	3-2x12	Eng Bm	
Ponderosa Pine Beam		2-2x6	2-2x6	2-2x8	2-2x10	2-2x12	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng Bm	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	16 13 11	17 14 12	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	23 19 16	24 19 17	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	Eng Bm	Eng Bm	Eng Bm	Eng Bm	
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	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	16 13 11	17 14 12	17 14 12	17 14 12		
		Intermediate Footing	13 11 9	15 12 10	16 13 11	17 14 12	18 15 13	20 16 14	21 17 15	22 18 15	23 18 16	24 19 17	24 19 17	24 20 17	24 20 17	
	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	Eng Bm	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	Eng Bm	Eng Bm		
Corner Footing		10 8 7	11 9 8	12 10 8	13 10 9	14 11 10	14 12 10	15 12 11	16 13 11	17 14 12	17 14 12	17 14 12	18 15 13	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	24 20 17	25 21 18	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	Eng Bm	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	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	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	25 21 18	26 21 18	26 21 18	

Notes:

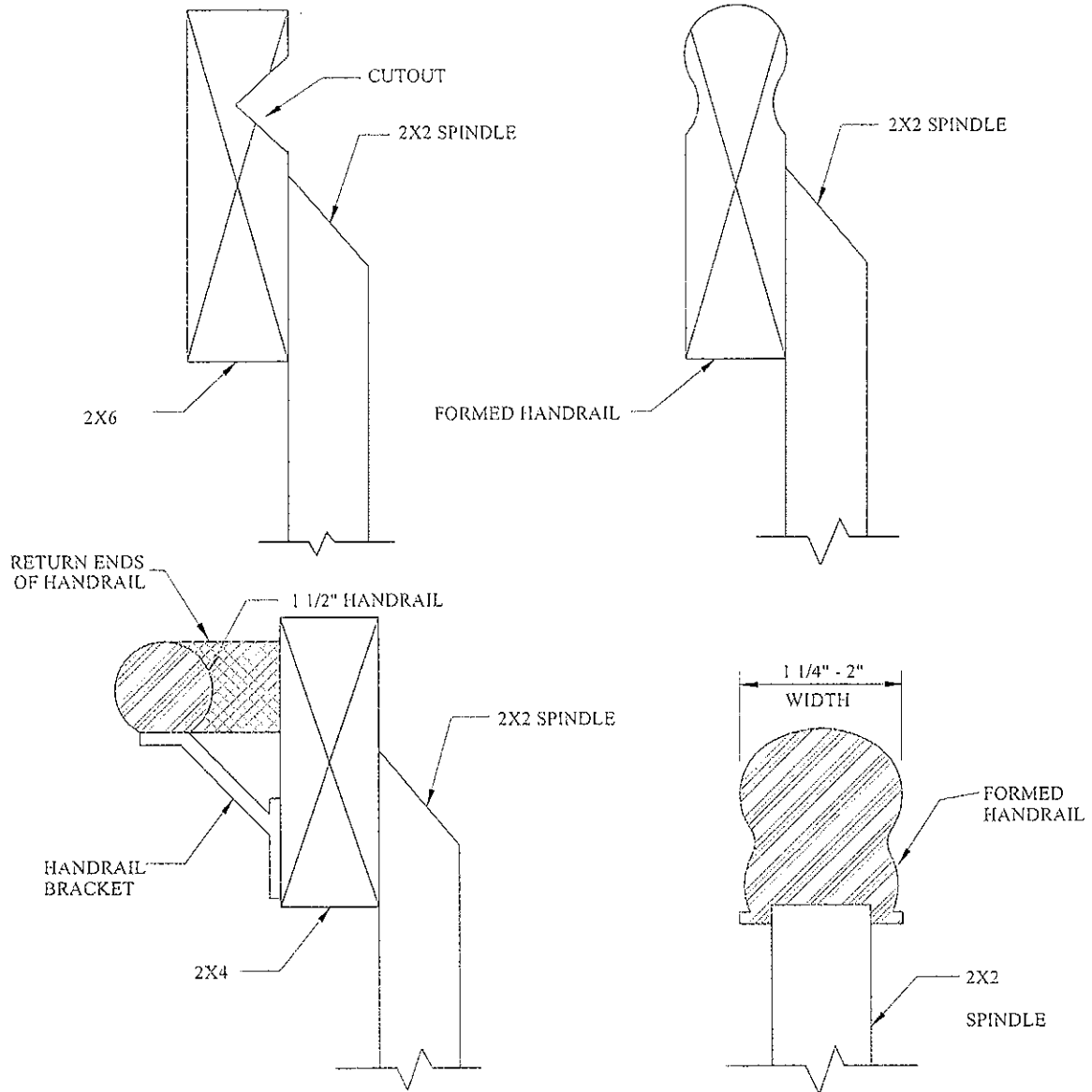
- Joist length is total length of joist, including any cantilevers.
- When joist extends (cantilevers) beyond support beam by 18" or more, add 1" to footing dimensions shown.
- Requirements for future 3-season porches or screen porches:
 - Increase corner footing size shown by 90%.
 - Increase center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

4. All footing sizes above are base diameters (in inches) and are listed for THREE SOIL TYPES:





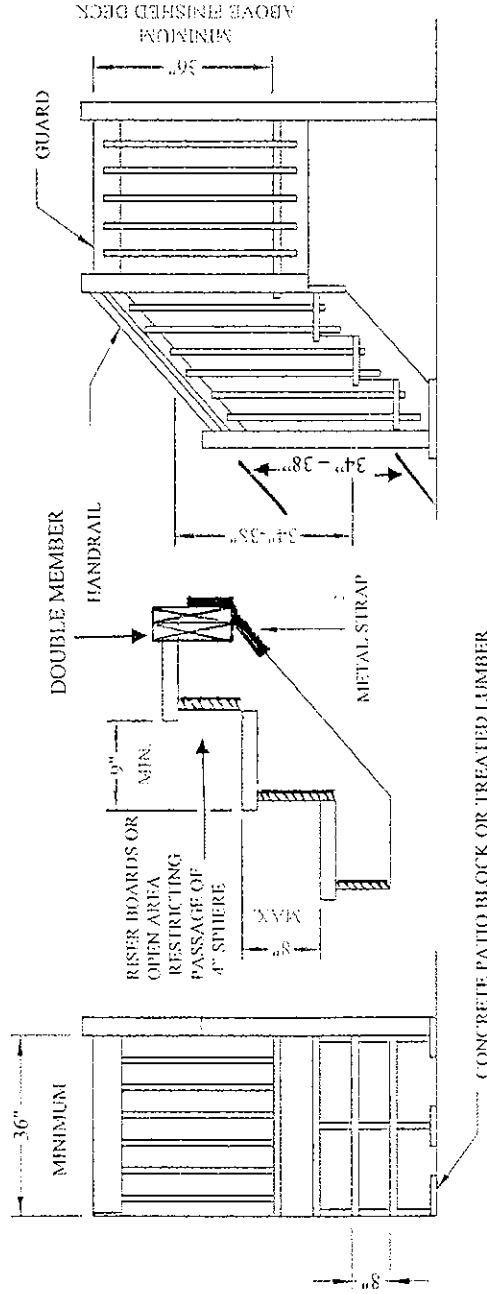
HANDRAIL DESIGNS



NOTES:

1. OTHER SHAPES MAY BE ACCEPTABLE IF THEY PROVIDE AN EQUIVALENT GRIPPING SURFACE.
2. FLAT 2X4 OR 2X6 HANDRAILS ARE NOT ACCEPTABLE.
3. APPROVED WOOD OF NATURAL RESISTANCE TO DECAY OR TREATED WOOD SHALL BE USED.
4. RETURN ENDS OF HANDRAILS AT TOP AND BOTTOM OF STAIRS TO POST OR NEWELL.
5. 1-1/2" MINIMUM SPACE BETWEEN HANDRAIL AND GUARDRAIL OR WALL.

STAIR AND LANDING REQUIREMENTS FOR DECKS



GENERAL BUILDING CODE REQUIREMENTS

1. STAIRWAYS SHALL BE SUPPORTED ON CONCRETE OR PRESSURE TREATED LUMBER FOOTINGS.
2. PRESSURE TREATED LUMBER OR AN EQUIVALENT SHALL BE USED.
3. STAIRWAYS SHALL HAVE A MINIMUM WIDTH OF THIRTY-SIX (36) INCHES. THE STAIRWAYS SHALL HAVE AN EIGHT (8) INCH MAXIMUM RISE AND A NINE (9) INCH MINIMUM RUN. STAIR RISERS AND TREADS CANNOT VARY BY MORE THAN 3/8".
4. A STAIRWAYS WITH FOUR (4) OR MORE RISERS SHALL BE PROVIDED WITH A HANDRAIL THIRTYFOUR (34) TO THIRTYEIGHT (38) INCHES ABOVE THE NOSE OF THE TREAD TO THE TOP OF HANDRAIL.
5. WHEN A STAIRWAY IS OPEN ON BOTH SIDES, A GUARDRAIL SHALL BE REQUIRED ON EACH OPEN SIDE.
6. THE HANDGRIP PORTION OF A HANDRAIL SHALL BE CONTINUOUS THE FULL LENGTH OF THE STAIRWAY.
7. OPEN GUARDRAIL AND STAIRRAILS SHALL HAVE HORIZONTAL, VERTICAL OR DIAGONAL RAILS SUCH THAT A SPHERE FOUR (4) INCHES IN DIAMETER CANNOT PASS THROUGH. DECKS WHICH ARE MORE THAN THIRTY (30) INCHES ABOVE GRADE SHALL BE PROTECTED BY A GUARDRAIL NOT LESS THAN THIRTY-SIX (36) INCHES IN HEIGHT. THE TRIANGLE AREA BETWEEN STAIR RISER AND TREAD AT BOTTOM OF GUARDRAIL MUST BE OF SUCH SIZE THAT A SPHERE SIX (6) INCHES IN DIAMETER CANNOT PASS THROUGH.
8. A MINIMUM 36"X 36" LANDING SIZE IS REQUIRED AT BOTTOM AND TOP OF STAIRS OR FLAT GROUND AT BOTTOM.

SAMPLE DECK PLAN

FILL IN THE BLANKS:

- A. SPACING IN BETWEEN POSTS _____
 - B. BEAM SIZE (2-2x10, ETC.) _____
 - C. POST SIZE (4x4 -- 6x6, ETC.) _____
 - D. JOIST LENGTH AND SIZE _____
 - E. JOIST OVERHANG (2' MAX.) _____
 - F. SPACING BETWEEN JOISTS
(16" OR 24" O.C.) _____
 - G. CORNER FOOTING SIZE _____
 - H. INTERMEDIATE FOOTING SIZE _____
 - I. OVERALL DECK SIZE _____
- TYPE OF MATERIAL
(CEDAR, TREATED, ETC.) _____
- HEIGHT ABOVE GROUND _____
- TYPE OF DECKING
(5/4x6-2x6, ETC.) _____

