

RESIDENTIAL DECK, SCREEN and COVERED PORCH
BUILDING PERMIT INFORMATION
FOR 1 & 2-FAMILY DWELLINGS

Building permits are required for any attached or detached deck that has a walking surface 6" or more above grade.

To obtain a building permit for a deck you **must** supply the following:

- ❖ Signed and completed building permit application form.
- ❖ Two (2) copies of a site plan, two (2) copies of a section/elevation and two (2) copies of a floor plan.

See page 3 for examples of plans required

Once the application and complete, correct plans are received by the Building Safety Department it can take up to 5-business days for plan review before the permit is issued. Please plan accordingly.

Required inspections:

- 1) **Footing Inspection** after the footings have been dug and before the placement of any concrete.
- 2) **Framing Inspection**
Screen or covered porches (when framing is to be covered) after framing is completed but before framing is covered.
Decks (if framing will not be visible at final inspection) after framing is completed but before placement of deck boards.
- 3) **Final Inspection** after deck is complete, including all steps, guardrails, handrails, etc.

Call 255-7239, 8 a.m. to 4:30 p.m., to arrange an inspection **at least one business day** in advance. Inspection appointments are scheduled on a first-come first-serve basis, and there is no guarantee that you can get an inspection within 24 hours of calling. Inspections are available 9:00 a.m. to 11:30 a.m. and 1:30 p.m. to 3:30 p.m. Monday through Friday.

An inspection is required at least every 6 months otherwise the permit will be closed and a new permit will be required to finish project. When needed, an extension may be requested in writing.

Setbacks/placement on property

- ❖ Setbacks from property lines varies depending on the lot, please contact the Building Safety Department at (320)255-7239 or the Planning Department at (320)255-7218 for specific requirements.
- ❖ Some properties have drainage and/or utility easements; structures are not allowed to be built in these easements. Contact the City Engineering Department at (320)255-7249 for information.
- ❖ All setbacks are measured to property lines.
 - Property lines are found by locating the property irons (buried in each corner of the lot) typically by using a metal detector. If the property irons cannot be found a surveyor can be hired to locate them. **The City of St. Cloud DOES NOT survey properties.** Sidewalks and fences are not necessarily on the property lines. The only way to find a property line is by finding the property irons.
- ❖ Any overhead power supply wires must be at least 10' above the surface of the deck or at least 3' away from the edge of the deck horizontally.
- ❖ Find out where the underground utility lines might be buried before you dig. Anyone digging in Minnesota must call before digging. This is a FREE service. Call Gopher State One 1-800-252-1166, at least 2-business days before you dig, office hours are 7 a.m. – 5 p.m., Monday through Friday.

Footings

- ❖ See page 4 & 5 for proper sizing of footings.
- ❖ Attached deck footings shall be designed and constructed below frost depth (42" minimum to bottom of footing).
- ❖ Detached decks are required to have code compliant footings, but they do not need to be below frost depth.
- ❖ Pre-cast footings (cookies) have a minimum 4" thickness.
- ❖ Cast-in-place concrete footings are a minimum 6" thickness.

Guardrails, Stairways & Handrails

- ❖ See attached stairway handout for guardrail, stairway and handrail specifications.
 - Decks that are more than 30" above grade shall have a guardrail.
 - Stairs have a maximum rise of 7 ¾" and minimum tread run of 10".
 - Continuous, graspable handrail is required for stairways with 4 or more risers.

Ledger board

- ❖ Ledger board must be the same size as the floor joists and attached to the dwelling with lag bolts/screws that penetrate into house rim or wall studs.
- ❖ All connections between the deck and dwelling shall be weatherproof. Any cuts in the exterior coverings of the house shall be properly flashed.
 - Make sure you are using the correct flashing and drip cap for treated lumber.

Wood required

- ❖ Approved wood of natural resistance to decay or treated wood shall be used for all lumber that is exposed to weather.
 - Recent changes have been made in the chemicals used in the manufacture of pressure-treated wood. The fastener industry has indicated that some of the drip caps, hangers, fasteners, ect. currently on the market **may not perform with some of the new treatments**. Make sure you use the proper hardware, for the type of treatment of the lumber.

Decking

- ❖ Some composite decking materials are approved for use; please contact the building department for a list of approved materials.
- ❖ Minimum decking thickness is 5/4" for decking running perpendicular to the joists.

Beams

- ❖ The support beams cannot overhang (cantilever) the support posts by more than one foot unless special designs are accepted at the time of plan approval.
- ❖ When beams are 2-ply, the two wood members must be nailed or lag-bolted together (see sample plan for more info).
- ❖ Any splices in beams must be over a support.

Joists

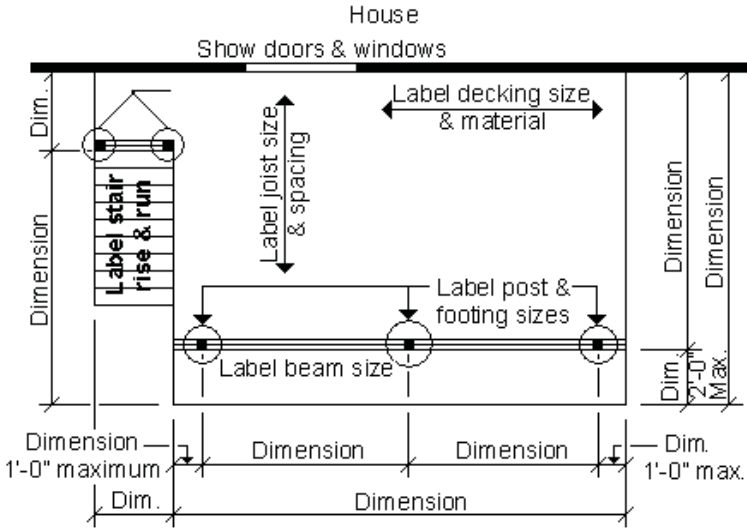
- ❖ Floor joists shall not overhang (cantilever) the support beams by more than 1'-0" for 2x6 joists or smaller, 2'-0" for over 2x6 joists.
- ❖ Joists that frame into ledgers or beams shall be supported by approved framing anchors such as joist hangers.

Additional requirements for screen or covered porches

- ❖ Posts and beams must be at extremities unless structurally engineered.
 - Plans must be signed and stamped by a structural engineer to be accepted with cantilevers.
- ❖ Increase corner footing sizes listed in chart by 90%.
- ❖ Increase intermediate footing sizes listed in chart by 55%.
- ❖ Pre-cast footings (cookies) and cast-in-place concrete footings both have a minimum 6" thickness.

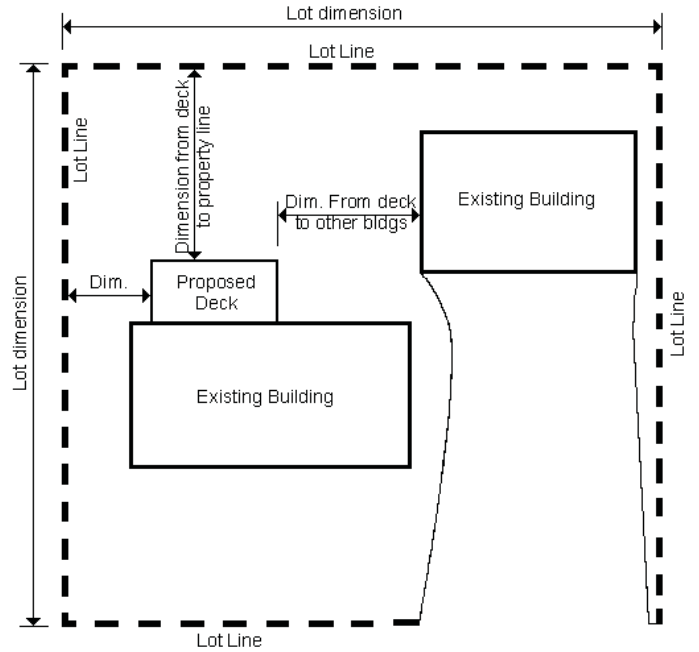
The information in this handout is just an overview.
See the 2007 Minnesota State Building Code for complete information.

Sample Floor Plan:

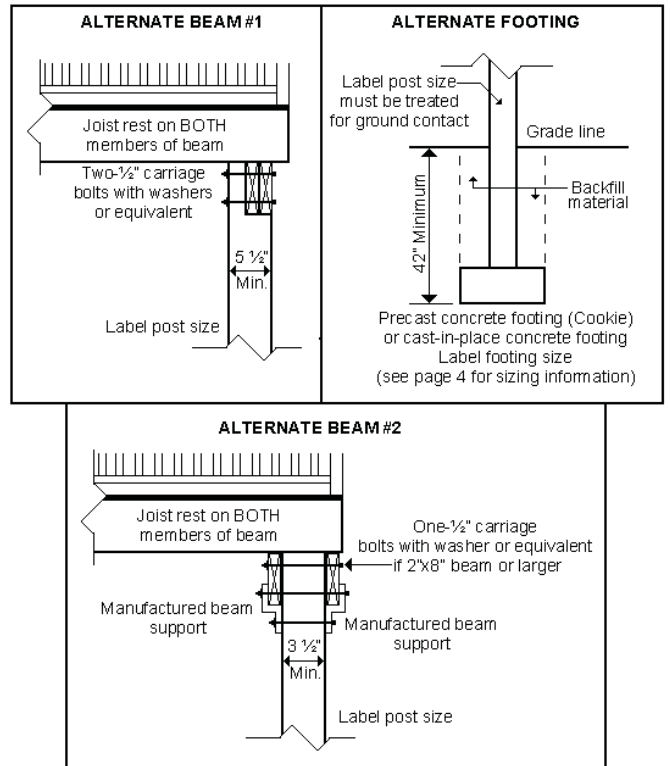
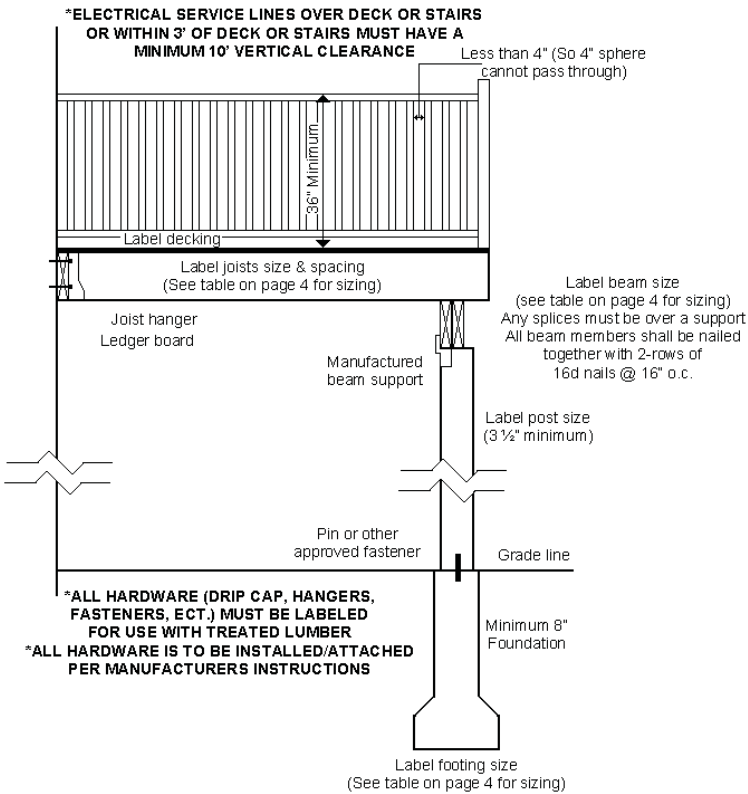


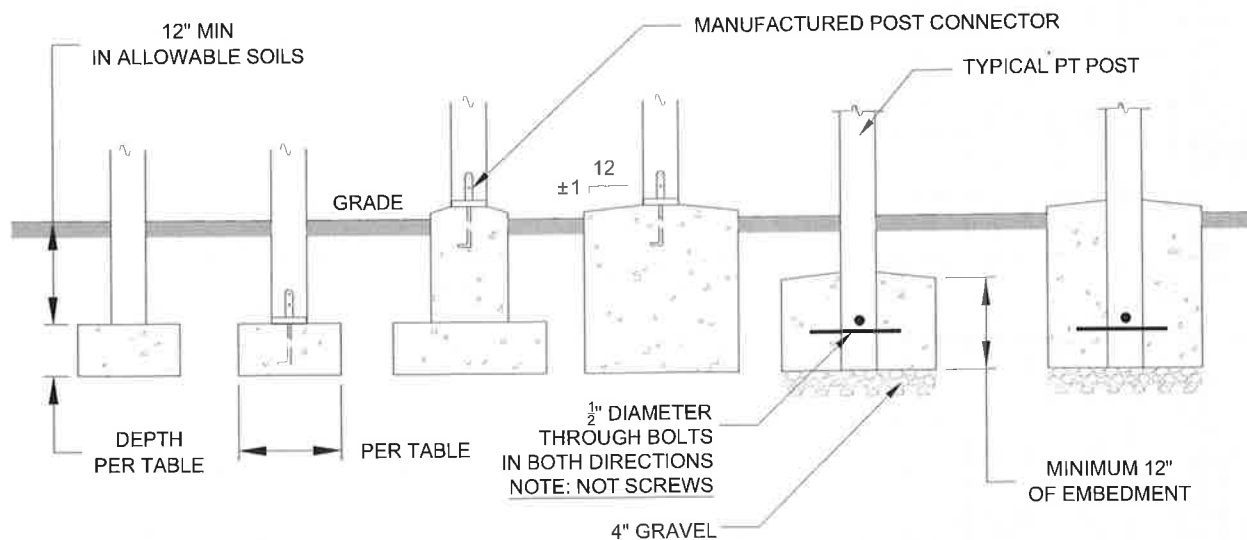
*See pages 4 & 5 for sizing of beams & joists

Sample Site Plan:



Sample Section/Elevation Plan:





NOTE:
POSTS MUST BE CENTERED ON OR IN FOOTING

For SI: 1 inch = 25.4 mm.

FIGURE R507.3
DECK POSTS TO DECK FOOTING CONNECTION

R507.3.2 Minimum depth. Deck footings shall extend below the frost line specified in Table R301.2(1) in accordance with Section R403.1.4.1.

Exceptions:

1. Free-standing decks that meet all of the following criteria:
 - 1.1. The joists bear directly on precast concrete pier blocks at grade without support by beams or posts.
 - 1.2. The area of the deck does not exceed 200 square feet (18.9 m²).
 - 1.3. The walking surface is not more than 20 inches (616 mm) above grade at any point within 36 inches (914 mm) measured horizontally from the edge.
2. Free-standing decks need not be provided with footings that extend below the frost line.

R507.4 Deck posts. For single-level wood-framed decks with beams sized in accordance with Table R507.5, deck post size shall be in accordance with Table R507.4.

TABLE R507.4
DECK POST HEIGHT^a

DECK POST SIZE	MAXIMUM HEIGHT ^{a, b} (feet-inches)
4 × 4	6-9 ^c
4 × 6	8
6 × 6	14
8 × 8	14

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

- a. Measured to the underside of the beam.
- b. Based on 40 psf live load.
- c. The maximum permitted height is 8 feet for one-ply and two-ply beams. The maximum permitted height for three-ply beams on post cap is 6 feet 9 inches.

R507.4.1 Deck post to deck footing connection. Where posts bear on concrete footings in accordance with Section R403 and Figure R507.4.1, lateral restraint shall be provided by manufactured connectors or a minimum post embedment of 12 inches (305 mm) in surrounding soils or concrete piers. Other footing systems shall be permitted.

Exception: Where expansive, compressible, shifting or other questionable soils are present, surrounding soils shall not be relied on for lateral support.

TABLE R507.3.1
MINIMUM FOOTING SIZE FOR DECKS

LIVE LOAD ^a (psf)	TRIBUTARY AREA (sq. ft.)	LOAD BEARING VALUE OF SOILS ^{a,c,d} (psf)												
		1500 ^b				2000 ^b				2500 ^b				≥ 3000 ^b
		Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness (inches)	
40	20	12	14	6	12	14	6	12	14	6	12	14	6	
	40	14	16	6	12	14	6	12	14	6	12	14	6	
	60	17	19	6	15	17	6	13	15	6	12	14	6	
	80	20	22	7	17	19	6	15	17	6	14	16	6	
	100	22	25	8	19	21	6	17	19	6	15	17	6	
	120	24	27	9	21	23	7	19	21	6	17	19	6	
	140	26	29	10	22	25	8	20	23	7	18	21	6	
	160	28	31	11	24	27	9	21	24	8	20	22	7	

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m², 1 pound per square foot = 0.0479 kPa.

- a. Interpolation permitted, extrapolation not permitted.
- b. Live load = 40 psf, dead load = 10 psf.
- c. Assumes minimum square footing to be 12 inches x 12 inches x 6 inches for 6 x 6 post.
- d. If the support is a brick or CMU pier, the footing shall have a minimum 2-inch projection on all sides.
- e. Area, in square feet, of deck surface supported by post and footings.

FLOORS

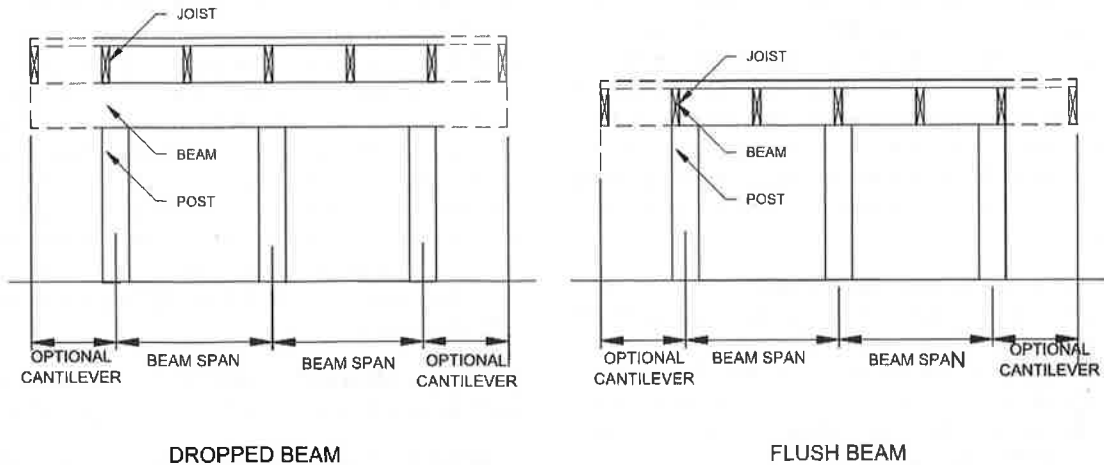


FIGURE R507.5
TYPICAL DECK JOIST SPANS

TABLE R507.5
DECK BEAM SPAN LENGTHS^{a, b, g} (feet - inches)

SPECIES ^c	SIZE ^d	DECK JOIST SPAN LESS THAN OR EQUAL TO: (feet)							
		6	8	10	12	14	16	18	
Southern pine	1 - 2 x 6	4-11	4-0	3-7	3-3	3-0	2-10	2-8	
	1 - 2 x 8	5-11	5-1	4-7	4-2	2-10	3-7	3-5	
	1 - 2 x 10	7-0	6-0	5-5	4-11	4-7	4-3	4-0	
	1 - 2 x 12	8-3	7-1	6-4	5-10	5-5	5-0	4-9	
	2 - 2 x 6	6-11	5-11	5-4	4-10	4-6	4-3	4-0	
	2 - 2 x 8	8-9	7-7	6-9	6-2	5-9	5-4	5-0	
	2 - 2 x 10	10-4	9-0	8-0	7-4	6-9	6-4	6-0	
	2 - 2 x 12	12-2	10-7	9-5	8-7	8-0	7-6	7-0	
	3 - 2 x 6	8-2	7-5	6-8	6-1	5-8	5-3	5-0	
	3 - 2 x 8	10-10	9-6	8-6	7-9	7-2	6-8	6-4	
	3 - 2 x 10	13-0	11-3	10-0	9-2	8-6	7-11	7-6	
	3 - 2 x 12	15-3	13-3	11-10	10-9	10-0	9-4	8-10	
Douglas fir-larch ^e , hem-fir ^e , spruce-pine-fir ^e , redwood, western cedars, ponderosa pine ^f , red pine ^f	3 x 6 or 2 - 2 x 6	5-5	4-8	4-2	3-10	3-6	3-1	2-9	
	3 x 8 or 2 - 2 x 8	6-10	5-11	5-4	4-10	4-6	4-1	3-8	
	3 x 10 or 2 - 2 x 10	8-4	7-3	6-6	5-11	5-6	5-1	4-8	
	3 x 12 or 2 - 2 x 12	9-8	8-5	7-6	6-10	6-4	5-11	5-7	
	4 x 6	6-5	5-6	4-11	4-6	4-2	3-11	3-8	
	4 x 8	8-5	7-3	6-6	5-11	5-6	5-2	4-10	
	4 x 10	9-11	8-7	7-8	7-0	6-6	6-1	5-8	
	4 x 12	11-5	9-11	8-10	8-1	7-6	7-0	6-7	
	3 - 2 x 6	7-4	6-8	6-0	5-6	5-1	4-9	4-6	
	3 - 2 x 8	9-8	8-6	7-7	6-11	6-5	6-0	5-8	
	3 - 2 x 10	12-0	10-5	9-4	8-6	7-10	7-4	6-11	
		3 - 2 x 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. 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.

g. Beam cantilevers are limited to the adjacent beam's span divided by 4.

**TABLE R507.6
DECK JOIST SPANS FOR COMMON LUMBER SPECIES (ft. - in.)**

SPECIES ^a	SIZE	ALLOWABLE JOIST SPAN ^b			MAXIMUM CANTILEVER ^{c, f}		
		SPACING OF DECK JOISTS (inches)			SPACING OF DECK JOISTS WITH CANTILEVERS ^e (inches)		
		12	16	24	12	16	24
Southern pine	2 × 6	9-11	9-0	7-7	1-3	1-4	1-6
	2 × 8	13-1	11-10	9-8	2-1	2-3	2-5
	2 × 10	16-2	14-0	11-5	3-4	3-6	2-10
	2 × 12	18-0	16-6	13-6	4-6	4-2	3-4
Douglas fir-larch ^d , hem-fir ^d spruce-pine-fir ^d	2 × 6	9-6	8-8	7-2	1-2	1-3	1-5
	2 × 8	12-6	11-1	9-1	1-11	2-1	2-3
	2 × 10	15-8	13-7	11-1	3-1	3-5	2-9
	2 × 12	18-0	15-9	12-10	4-6	3-11	3-3
Redwood, western cedars, ponderosa pine ^e , red pine ^e	2 × 6	8-10	8-0	7-0	1-0	1-1	1-2
	2 × 8	11-8	10-7	8-8	1-8	1-10	2-0
	2 × 10	14-11	13-0	10-7	2-8	2-10	2-8
	2 × 12	17-5	15-1	12-4	3-10	3-9	3-1

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. No. 2 grade with wet service factor.
- b. Live load = 40 psf, dead load = 10 psf, L/Δ = 360.
- c. 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.

**TABLE R507.7
MAXIMUM JOIST SPACING FOR DECKING**

DECKING MATERIAL TYPE AND NOMINAL SIZE	MAXIMUM ON-CENTER JOIST SPACING	
	Decking perpendicular to joist	Decking diagonal to joist ^a
1 1/4-inch-thick wood	16 inches	12 inches
2-inch-thick wood	24 inches	16 inches
Plastic composite	In accordance with Section R507.2	In accordance with Section R507.2

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.01745 rad.

- a. Maximum angle of 45 degrees from perpendicular for wood deck boards.