



Residential “Deck or Ramp” Form

2021 International Residential Code

City of Flora Building and Zoning

131 E 2nd St.

Flora, IL 62839

618-662-8313

www.florail.us

A building permit is required to construct a deck.

Exception: If the deck is detached, not over 30 inches above grade, under 120ft² and not serving the primary entry to the house, a permit is not required.

The following items must be submitted for review:

- A completed Building Permit Application AND this form.
- A site plan showing property lines, existing building, and proposed pergola location and with distances to property lines.
- Provide a separate plan from the site plan indicating location of footings, posts, floor joists, beams, stairs, and all dimensions.
- Your application will be reviewed for code compliance, permit fees will be calculated and you be notified when the permit is ready. The review process is five business days. Please keep in mind it can take longer if not all the information is given to approve the permit.
- If premanufactured ramp, provide manufacturers documentation for the product with the plans.

Circle or fill in the blanks and if not applicable, put NA

1. Is this a [deck], [ramp] or [both]? (please circle)
2. What is the construction material? [Pressure treated] [Cedar] or [Other] _____
3. What is the height of the deck or ramp floor above the finished grade of the yard? _____ (inches).
4. Dimensions of the deck or ramp? _____ Width (feet) & _____ Length (feet).
5. Overall square footage? _____ (square feet)
6. [Attached] or [detached] from the house? (please circle)
 - If attached to rim board of existing house, what size of fastener? ½” lag screw with ½” maximum sheathing or ½” bolt with ½” maximum sheathing or ½” bolt with 1” maximum sheathing Other (See **Table 1**) & (See **Figure 1**)
 - If other, specify the manufacturers name and spacing? Name _____ & Spacing _____
 - If not attached to rim board, provide what the deck or ramp is attached to? What portion of the house _____
7. Footing depth? _____ (inches) Minimum frost protection is 32” below grade. If detached from the house, frost protection is not required.
8. Footing width diameter _____ (inches). see **Table 2**
9. Size of posts? _____ (inches x inches)
10. Deck post height over 4’-7”? Yes No
 - If yes – indicate height of the deck post _____ feet _____ inches. see **Table 3**
11. Spacing of posts? _____ (feet)
12. Size and spacing of floor joists? _____ (joist size) and _____ spacing (inches o.c.) See **Table 4**
13. Joists [**direct bearing**] or [**joist hangers**]? (please circle)
14. Do the floor joists cantilever? Yes No
 - If yes – cantilever on [**front**], [**back**] or [**both**] of deck? (please circle)
 - What is the length of the cantilever floor joist? _____ (feet-inches) See **Table 4**
15. What is the beam size _____ and maximum span _____? See **Table 5**
16. How many ply on beam? (1-ply, 2-ply, 3-ply, or 4-ply [**Circle**])
17. Joist, rim board (acting as bearing) beam or girder bearing is required to have not less than 1.5 inches of bearing on wood or metal and not less than 3 inches on masonry or concrete. A minimum two ½ in. through bolts per these areas or an approved connector. **Method 1** or **Method 2** or **Method 3** See **Figure 2**.
18. Decking material (thickness)? – See **Table 6** 1-1/4” 2” Other (Follow manufacturers specifications)
19. Decking installed? – See **Table 6** Perpendicular to joist or diagonal to joist

Check off each item that pertains to your project or NA.

- Bottom of the steps require a footing at each corner or trench footing.
- Stringer spacing shall meet Table R507.7.
- Stringers for steps require a hanger or a ledger for bearing support.
- Steps of four or more risers require a handrail 34 in. -38 in. high. Handrail must be graspable and be continuous for the full length of the stairs and return or terminate in newel posts.
- Handrail grip size must be either circular (1-1/4 in. to 2 in.), square (cross section of no more than 2-1/4 in.), or other shapes (1-1/4 in. to 2-3/4 in. with a perimeter of no more than 6-1/4 in.).
- Minimum 10 in. tread and maximum 7 ¾ in. risers on stairs. Tread is measured from nosing to nosing. No more than 3/8" difference on the tread and risers.
- Open riser spaces must be less than 4-in.
- Decks greater than 30 in. above grade require a guardrail. Grade is measured at any point within 36 in. horizontally to the edge of the deck.
- Guardrail height is minimum 36 in. above the deck.
- Openings in the guardrail shall not allow passage of a 4-in. diameter sphere.
- Beam splices are required to occur over the post.
- Flashing shall be corrosion-resistant metal of nominal thickness not less than 0.019 inch (0.48 mm) or approved nonmetallic material that is compatible with the substrate of the structure and the decking materials.
- Deck cannot be attached to the existing house cantilever unless drawings are prepared by a licensed design professional. If attached to masonry veneer or other materials other than in direct contact of the house structural member, please provide information that meets this requirement.
- Deck Ramps shall not exceed 1:12 slope (8.33%). Requirements shall meet R311.8.

Note: The items listed above do not comprise an exhaustive list. The presence of the information listed above (when applicable) will expedite the plan review and the issuance of permits. Revisions on plan resubmittals should be highlighted or clouded so that the changes are readily found during the plan review process.

Table 1

**TABLE R507.9.1.3(1)
DECK LEDGER CONNECTION TO BAND JOIST**

LOAD ^c (psf)	JOIST SPAN ^a (feet)	ON-CENTER SPACING OF FASTENERS ^b (inches)		
		½-inch diameter lag screw with ½-inch maximum sheathing ^{d,e}	½-inch diameter bolt with ½-inch maximum sheathing ^e	½-inch diameter bolt with 1-inch maximum sheathing ^f
40 live load	6	30	36	36
	8	23	36	36
	10	18	34	29
	12	15	29	24
	14	13	24	21
	16	11	21	18
	18	10	19	16

Table 2

POST SIZE	MINIMUM DIAMETER WIDTH (inches)
4 x 4	10
4 x 6	12
6 x 6	12
8 x 8	14
10 x 10	16
12 x 12	18

Table 3

**TABLE R507.4
DECK POST HEIGHT**

LOADS (psf) ^b	POST SPECIES ^c	POST SIZE ^d	TRIBUTARY AREA (ft ²) ^{e,h}							
			20	40	60	80	100	120	140	160
			MAXIMUM DECK POST HEIGHT ^a (feet-inches)							
40 live load	Southern pine	4 x 4	14-0	13-8	11-0	9-5	8-4	7-5	6-9	6-2
		4 x 6	14-0	14-0	13-11	12-0	10-8	9-8	8-10	8-2
		6 x 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Douglas fir ^e Hem-fir ^e Spruce-pine-fir ^e	4 x 4	14-0	13-6	10-10	9-3	8-0	7-0	6-2	5-3
		4 x 6	14-0	14-0	13-10	11-10	10-6	9-5	8-7	7-10
		6 x 6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Redwood ^f Western cedars ^f Ponderosa pine ^f Red pine ^f	4 x 4	14-0	13-2	10-3	8-1	5-8	NP	NP	NP
		4 x 6	14-0	14-0	13-6	11-4	9-9	8-4	6-9	4-7
		6 x 6	14-0	14-0	14-0	14-0	14-0	14-0	13-7	9-7
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0

Table 4

**TABLE R507.6
MAXIMUM DECK JOIST SPANS**

LOAD ^a (psf)	JOIST SPECIES ^b	JOIST SIZE	ALLOWABLE JOIST SPAN ^{b,c} (feet-inches)			MAXIMUM CANTILEVER ^{d,f} (feet-inches)							
			Joist spacing (inches)			Joist back span ^g (feet)							
			12	16	24	4	6	8	10	12	14	16	18
40 live load	Southern pine	2 x 6	9-11	9-0	7-7	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2 x 8	13-1	11-10	9-8	1-0	1-6	2-0	2-6	2-3	NP	NP	NP
		2 x 10	16-2	14-0	11-5	1-0	1-6	2-0	2-6	3-0	3-4	3-4	NP
		2 x 12	18-0	16-6	13-6	1-0	1-6	2-0	2-6	3-0	3-6	4-0	4-1
	Douglas fir-larch ^e Hem-fir ^e Spruce-pine-fir ^e	2 x 6	9-6	8-4	6-10	1-0	1-6	1-4	NP	NP	NP	NP	NP
		2 x 8	12-6	11-1	9-1	1-0	1-6	2-0	2-3	2-0	NP	NP	NP
		2 x 10	15-8	13-7	11-1	1-0	1-6	2-0	2-6	3-0	3-3	NP	NP
		2 x 12	18-0	15-9	12-10	1-0	1-6	2-0	2-6	3-0	3-6	3-11	3-11
	Redwood ^f Western cedars ^f Ponderosa pine ^f Red pine ^f	2 x 6	8-10	8-0	6-10	1-0	1-4	1-1	NP	NP	NP	NP	NP
		2 x 8	11-8	10-7	8-8	1-0	1-6	2-0	1-11	NP	NP	NP	NP
		2 x 10	14-11	13-0	10-7	1-0	1-6	2-0	2-6	3-0	2-9	NP	NP
		2 x 12	17-5	15-1	12-4	1-0	1-6	2-0	2-6	3-0	3-6	3-8	NP

**TABLE R507.5(5)
JOIST SPAN FACTORS FOR CALCULATING EFFECTIVE DECK JOIST SPAN
[for use with Note j in Tables R507.5(1), R507.5(2), R507.5(3) and R507.5(4)]**

C/J ^a	JOIST SPAN FACTOR
0 (no cantilever)	0.66
1/12 (0.87)	0.72
1/10 (0.10)	0.80
1/8 (0.125)	0.84
1/6 (0.167)	0.90
1/4 (0.250)	1.00

For SI: 1 foot = 304.8 mm.

a. C = actual joist cantilever length (feet); J = actual joist span length (feet).

Table 5

**TABLE R507.5(1)
MAXIMUM DECK BEAM SPAN—40 PSF LIVE LOAD^c**

BEAM SPECIES ^d	BEAM SIZE ^e	EFFECTIVE DECK JOIST SPAN LENGTH ^{a, i, j} (feet)						
		6	8	10	12	14	16	18
		MAXIMUM DECK BEAM SPAN LENGTH (feet-inches) ^{a, b, f}						
Southern pine	1 – 2 × 6	4-7	4-0	3-7	3-3	3-0	2-10	2-8
	1 – 2 × 8	5-11	5-1	4-7	4-2	3-10	3-7	3-5
	1 – 2 × 10	7-0	6-0	5-5	4-11	4-7	4-3	4-0
	1 – 2 × 12	8-3	7-1	6-4	5-10	5-5	5-0	4-9
	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	7-5	7-0
	3 – 2 × 6	8-6	7-5	6-8	6-1	5-8	5-3	4-11
	3 – 2 × 8	10-11	9-6	8-6	7-9	7-2	6-8	6-4
	3 – 2 × 10	13-0	11-2	10-0	9-2	8-6	7-11	7-6
3 – 2 × 12	15-3	13-3	11-10	10-9	10-0	9-4	8-10	
Douglas fir-larch ^g Hem-fir ^g Spruce-pine-fir	1 – 2 × 6	4-1	3-6	3-0	2-8	2-5	2-3	2-1
	1 – 2 × 8	5-6	4-8	4-0	3-6	3-2	2-11	2-9
	1 – 2 × 10	6-8	5-10	5-1	4-6	4-1	3-9	3-6
	1 – 2 × 12	7-9	6-9	6-0	5-6	5-0	3-9	3-6
	2 – 2 × 6	6-1	5-3	4-9	4-4	3-11	3-7	3-3
	2 – 2 × 8	8-2	7-1	6-4	5-9	5-2	4-8	4-4
	2 – 2 × 10	10-0	8-7	7-9	7-0	6-6	6-0	5-6
	2 – 2 × 12	11-7	10-0	8-11	8-2	7-7	7-1	6-8
	3 – 2 × 6	7-8	6-8	6-0	5-6	5-1	4-9	4-6
	3 – 2 × 8	10-3	8-10	7-11	7-3	6-8	6-3	5-11
	3 – 2 × 10	12-6	10-10	9-8	8-10	8-2	7-8	7-2
3 – 2 × 12	14-6	12-7	11-3	10-3	9-6	8-11	8-5	
Redwood ^h Western cedars ^h Ponderosa pine ^h Red pine ^h	1 – 2 × 6	4-2	3-7	3-1	2-9	2-6	2-3	2-2
	1 – 2 × 8	5-4	4-7	4-1	3-7	3-3	3-0	2-10
	1 – 2 × 10	6-6	5-7	5-0	4-7	4-2	3-10	3-7
	1 – 2 × 12	7-6	6-6	5-10	5-4	4-11	4-7	4-4
	2 – 2 × 6	6-2	5-4	4-10	4-5	4-0	3-8	3-4
	2 – 2 × 8	7-10	6-10	6-1	5-7	5-2	4-10	4-5
	2 – 2 × 10	9-7	8-4	7-5	6-9	6-3	5-10	5-6
	2 – 2 × 12	11-1	9-8	8-7	7-10	7-3	6-10	6-5
	3 – 2 × 6	7-8	6-9	6-0	5-6	5-1	4-9	4-6
	3 – 2 × 8	9-10	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.
- Interpolation permitted. Extrapolation not permitted.
 - Beams supporting a single span of joists with or without cantilever.
 - Dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever. Snow load is not assumed to be concurrent with live load.
 - No. 2 grade, wet service factor included.
 - Beam depth shall be equal to or greater than the depth of intersecting joist for a flush beam connection.
 - Beam cantilevers are limited to the adjacent beam's span divided by 4.
 - Includes incising factor.
 - Incising factor not included.
 - Deck joist span as shown in Figure R507.5.
 - For calculation of effective deck joist span, the actual joist span length shall be multiplied by the joist span factor in accordance with Table R507.5(5).

Table 6

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

DECKING MATERIAL TYPE AND NOMINAL SIZE	DECKING PERPENDICULAR TO JOIST		DECKING DIAGONAL TO JOIST ^a	
	Single span ^c	Multiple span ^c	Single span ^c	Multiple span ^c
	Maximum on-center joist spacing (inches)			
1 1/4-inch-thick wood ^b	12	16	8	12
2-inch-thick wood	24	24	18	24

- For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.01745 rad.
- Maximum angle of 45 degrees from perpendicular for wood deck boards.
 - Other maximum span provided by an accredited lumber grading or inspection agency also allowed.
 - Individual wood deck boards supported by two joists shall be considered single span and three or more joists shall be considered multiple span.

Figure 1

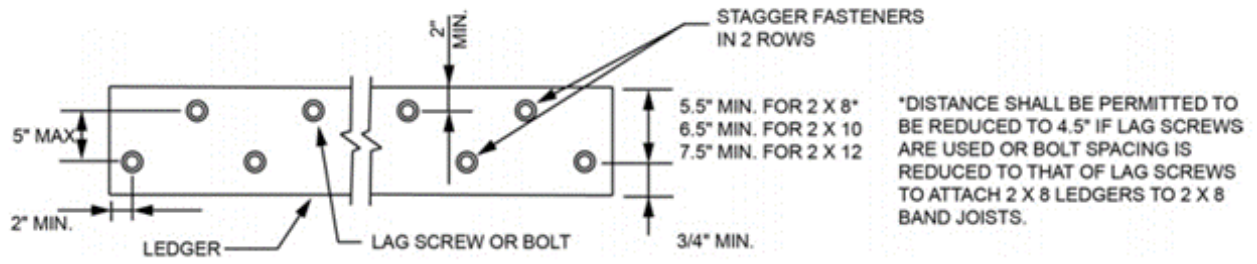


FIGURE R507.9.1.3(1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

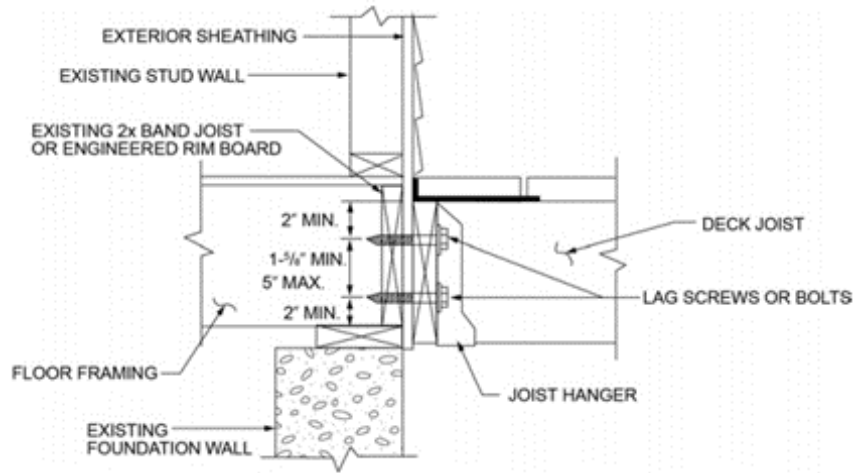


Figure 2

