

Deck Requirements

IN ORDER TO BUILD A DECK IN THE CITY OF JOHNSTON, YOU MUST OBTAIN A PERMIT, PASS AN INSPECTION, AND LOCATE PROPERTY LINES.

OBTAINING A PERMIT

To obtain a permit, you will need the following information:

- Building Permit Application - pick up at our office.
- Site plan showing arrow pointing north & labeled **N** or **North**, location of house, deck, accessory structures, septic & laterals, easements and measurements from deck to rear & side yard(s) to lot lines.
- One drawing of deck showing height from ground to top of floor at the highest point, joist/beams/post sizes and spacing, post footing depth from ground level, steps rise & tread, railing detail.
- **After submitting the Building Permit to the city, the Permit Application Review takes a maximum of five (5) working days.**

PROPERTY LINES

- The City of Johnston does not locate property lines.
- The Building Department can provide you with a plat map showing a property's dimensions.

INSPECTIONS

- Generally, inspections are required for 1)post holes for footings; 2)final when deck is done; 3)others as determined by building inspector.
- Inspections can typically be scheduled the same day as requested. To schedule, call the Building Permit Technician at (515) 727-7778.

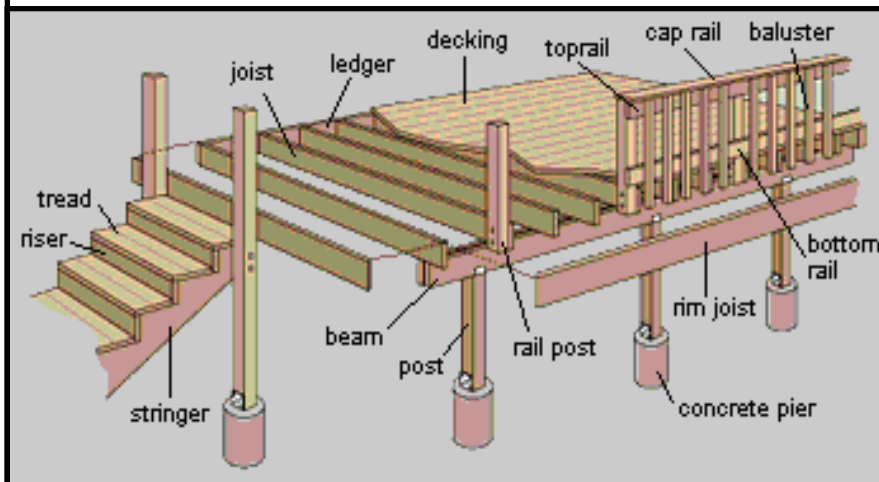
Johnston

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Johnston, IA 50131-0410
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GENERAL GUIDELINES

1. A deck is considered an unroofed platform.
2. All decks require a building permit from the Building Department, 6221 Merle Hay Road.
3. Decks 30 inches or more above ground are required to meet all building setbacks for side & rear yards.
4. Decks 30 inches or more above the ground, are to have the required 25 feet minimum rear yard setback.
5. A deck is **NOT** permitted to encroach over or otherwise impede an easement on file with the applicable County Recorder.
6. Restrictive covenants are the responsibility of the property owner.
7. A guard rail is required if deck height is 30 inches or more above grade.
8. If guard rail and stair railings are required, they shall have intermediate railings or an ornamental pattern such that a sphere 4 inches in diameter cannot pass through.
9. Stairs with 3 (three) or more risers require grip-able hand rails that shall be not less than 34 inches and not more than 38 inches.
10. A minimum 10 inch run and maximum 7 3/4 inch rise is required for stairs.
11. Engineered drawings **are required** when a **hot tub** will be placed on a deck as additional support is required to hold the extreme weight of the water.
12. Pounds per square foot must be increased for hot tubs.



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Notification service for locating underground

STEP 1: DESIGN AND PLAN YOUR DECK

If you do not have a ready-made design you'll have to design a plan yourself.

First, draw a simple sketch of the deck—decking, rails, footing, posts and beams, then insert the dimension. To save money, stick to standard lumber sizes and lengths.

Use a treated lumber.

STEP 2: FIND THE FOOTING SIZE

To find the footing size, use the equations below to calculate the load on the corner posts (equation 1) and on the intermediate posts (equation 2). **Neither equation is designed for hot tub loads.**

Equation 1

$$(1/2 \text{ PS } 1) \times (1/2 \text{ span}) = \text{Load Area} \times (80 \text{ psf}) = \text{Load (psf)}$$

$$\text{_____} \times \text{_____} = \text{_____} \times 80 = \text{_____}$$

Equation 2

$$(1/2 \text{ PS } 1 + 1/2 \text{ PS } 2) \times (1/2 \text{ span}) = \text{Load Area} \times (80 \text{ psf}) = \text{Load (psf)}$$

$$(\text{_____} + \text{_____}) \times \text{_____} = \text{_____} \times 80 = \text{_____}$$

Using Equation 1 and Equation 2, refer to the chart to determine the footing size for each post.

Load (psf)	Posthole Diameter
500 or less	8 inches
501 to 1000	10 inches
1001 to 1500	12 inches
1501 to 2000	14 inches
2001 to 2500	16 inches

- CP = Corner Posts
- IP = Intermediate Posts
- PS = Measurement between centers of posts
- Span = Outside width of deck

- psf = Pounds per square foot
- Total Loads = Live Load + Dead load
- Total Loads = 50 psf
- Cantilever = Where joist and decking extend over posts

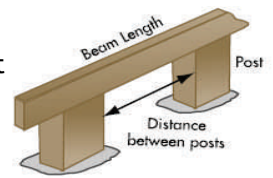
STEP 3: FIND THE POST SIZE

To find the appropriate post size, use the chart below for each post. Embed the post in the concrete footing or attach with approved connectors.

Height in Feet	Load area supported by post				
	48 sf	72 sf	96 sf	120 sf	144 sf
Up to 6	4 x 4	4 x 4	6 x 6	6 x 6	6 x 6
Up to 8	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6

STEP 4: FIND THE BEAM SIZE

To find the beam size on which to rest the joint, refer to the chart below.



If the distance between posts:	Use:
is less than or equal to 4 feet	(2) 2 x 6
is more than 4' or less than 6'	(2) 2 x 8
is more than 6' or less than 8'	(2) 2 x 10
is more than 8' or less than 10'	(2) 2 x 12
is greater than 10 feet	Consult Designer

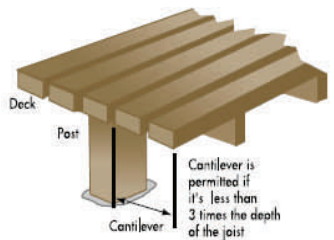
STEP 5: FIND THE JOIST SPAN

To find the joist size and span, use the chart below. Notice that the span allowed by different joist sizes is dependent on 16 inch or 24 inch spacing between joists. Attach each joist to the ledger board that is attached to the house and rest the other end on the beam.

Joist Size in Inches	Max Joist Spacing		Your Deck Span
	16" o/c	24" o/c	
2 x 6	9 ft. 4 in.	8 ft. 2 in.	
2 x 8	12 ft. 3 in.	10 ft. 9 in.	
2 x 10	15 ft. 8 in.	13 ft. 8 in.	
2 x 12	19 ft. 1 in.	16 ft. 8 in.	

STEP 6: FIND THE DECKING MATERIAL SPAN

Next, you need to determine the appropriate deck surface material. Shrinkage will occur when treated materials dry out. To ensure the spacing will be no more than 1/4" between boards AFTER the material dries out, install deck surface boards tightly together—with no more than 1/8" spacing.



Laid Flat	Material Size	Joist Spacing
	5/4 x 4	16"
	5/4 x 6	16/24"
	2 x 4	16/24"
	2 x 6	16/24"
Laid on Edge	2 x 4	48"

STEP 7: DESIGN THE RAILING

The last step is to design the railing. A guard railing is required if the decking surface is more than 30 inches off the ground. A 4" sphere shall not be able to pass through any openings and the rails shall be arranged so that a ladder effect is not created.

Distance Between Posts	Post Size	Cap Size
2 ft. to 3 ft.	2 x 4	2 x 4
3 ft. to 4 ft.	2 x 4, 4 x 4	2 x 4, 2 x 6
4 ft. to 6 ft.	2 x 6, 4 x 4	2 x 6

Thanks to the City of Des Moines Permit & Development Center and the City of Clive Community Development Department for their assistance with this form.