City of Crystal Lake
Community Development Department

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RESIDENTIAL WOOD DECKS / PORCHES

Please provide the following information when applying for a permit:

- Apply online using **City of Crystal Lake ez APP**
  OR submit a Building Permit Application
  Applications are available at City Hall or online at the City's website, **www.crystallake.org**.
- Two copies of a current Plat of Survey showing the location of the deck or porch and all setbacks to property lines and structures.
- Two copies of building plans providing the following information: pier locations, pier size, beam size beam spans, joist size, joist spans, fasteners, flashing, stairs, guardrails, and handrails.
- Homeowners Association approval may be required.

Inspections

Please schedule inspections by 4:00 P.M. the day before the inspection.

The following inspections are needed for a deck/porch:

- Pre-pour piers
- Rough framing (prior to decking)
- Underground electrical (if applicable, prior to backfilling trench)
- Final electrical
- Final framing

The following information is needed when requesting an inspection:

- Inspection type
- Address
- Date and time (am or pm)
- Permit number.
- Name and telephone number of homeowner/contractor requesting an inspection.

Setback and Zoning Requirements

- Decks are required to be set back a minimum of 5 feet from the side and rear property lines.
- Decks shall not be located in an easement.

- If the deck area exceeds 900 square feet, a Special Use Permit is required.
- Seat walls may be no taller than 18 inches on lake lot properties
- Decks may be no taller than 12 inches on lake lot properties

Deck/Porch Installation Guidelines

Concrete Piers

- Minimum 42 inches below grade.
- Minimum 10-inch diameter.
- Top of pier must be a minimum 1 inch above grade.

Posts

- Posts must be anchored to piers with an approved fastener.
  - Posts shall not be buried in concrete.

Note: See attached span table for post spacing.

Ledger

- Ledger boards shall be a minimum 2x8

Floor Joists and Beams

- Maximum joist spacing shall be 16 inches on center when using ¾ inch nominal lumber for decking.
- Maximum joist spacing shall be 24 inches on center when using 1 ½ inches nominal lumber for decking.
- All joists shall be attached to beams with an approved fastener.

Note: See attached span table for sizing requirements.

Connectors, joist hangers, and fasteners

- Connectors, joist hangers, and fasteners shall be listed and installed per manufacturer's specifications.
- A minimum of 2 hold-down tension devices shall be installed per deck elevation.
  - Devices to be installed within 24 inches of each end of the deck.

Wood materials

- All wood shall be of pressure preservative type.
- Wood in contact with earth shall be listed as approved for such use.

Stairs

- Maximum riser height shall be 7 ¾ inches.
- Minimum tread depth shall be 10 inches.
- All treads and risers within a flight of stairs shall be uniform. The largest shall not exceed the smallest by more than 3/8 inch.
- Riser openings for stairs with a total rise of more than 30 inches must not permit the passage of a 4-inch sphere.
- Stair stringer attachment shall be completed using an approved hanger or method

Handrails

- Provide a handrail between 34-38 inches in height on stairs with 4 or more risers.
  - Handrail height shall be measured vertically from the tread nosing
- Handrails must be graspable and return to walls or terminate in newel posts.
- Handrails shall be continuous for the full length of the stairs from the top riser to the lowest riser.

Guardrails

- Decks and floor surfaces more than 30 inches above grade shall have guards not less than 36 inches in height.
- Open sides of stairs with a rise greater than 30 inches shall have guards not less than 34 inches in height measured vertically from the nosing of the treads.
- Required guardrails shall have intermediate rails which do not allow the passage of a 4-inch sphere.
  - Openings for required guards on open sides of stairs shall not allow the passage of a 4 3/8 inch sphere.

Landings

- There shall be a floor or landing on each side of an exterior door.
- There shall be a floor or landing at the top or bottom of each stairway.
- Every landing shall have a minimum dimension of 36 inches measured in the direction of travel and be as wide as the door or stairway served.

Southern Pine Maximum Joist Spans (L_J)[1]

Joist Spacing (O.C.)						
Size	Allowable Span (L_J)			Allowable Cantilever (L_o)[2]		
	12”	16”	24”	24”	16”	12”
2x8	13’ – 1”	11’ – 10”	9’ – 8”	1’ – 10”	2’ – 0”	2’ – 4”
2x10	16’ – 2 “	14’ – 0”	11’ – 5”	3’ – 1”	3’ – 5”	2’ – 10”
2x12	18’ – 0”[3]	16’ – 6”	13’ – 6”	4’ – 6”	4’ – 2”	3’ – 4”

1. Assumes 40 pounds per square foot (psf) live load, 10 psf dead load, L/360 deflection, No. 2 grade, and wet service conditions
2. The maximum allowable cantilever cannot exceed L/4 or ¼ of the actual main span. Assumes cantilever length/180 deflection with 220 lb point load.
3. Joist length prescriptively limited to 18’ - 0” for footing design.

Southern Pine Deck Beam Spans (L_B)[1]

	Joist Spans (L_I) Less Than or Equal to:						
Size[2]	6’	8’	10’	12’	14’	16’	18’
(2) 2x6	6’ – 8”	5’ – 8”	5’ – 1”	4’ – 7”	4’ – 3”	4’ – 0”	3’ – 9”
(2) 2x8	8’ – 6”	7” – 4”	6’ – 6”	5’ – 11”	5’ – 6”	5’ – 1”	4’ – 9”
(2) 2x10	10’ – 1”	8’ – 9”	7’ – 9”	7’ – 1”	6’ – 6”	6’ – 1”	5’ – 9”
(2) 2x12	11’ – 11”	10’ – 4”	9’ – 2”	8’ – 4”	7’ – 9”	7’ – 3”	6’ – 9”
(3) 2x6	7’ – 11”	7’ – 2”	6’ – 5”	5’ – 10”	5’ – 5”	5’ – 0”	4’ – 9”
(3) 2x8	10’ – 7”	9’ – 3”	8’ – 3”	7’ – 6”	6’ – 11”	6’ – 5”	6’ – 1”
(3) 2x10	12’ – 9”	11’ – 0”	9’ – 9”	8’ – 9”	8” – 3”	7’ – 8”	7’ – 3”
(3) 2x12	15’ – 0”	13’ – 0”	11’ – 7”	10’ – 6”	9’ – 9”	9’ – 1”	8” – 7”

1. Assumes 40 psf live load, 10 psf dead load, L/360 simple span beam deflection limit, L/180 cantilever deflection limit, No. 2 stress grade, and wet service conditions. Deck beam spans (L_B) can extend past the post centerline up to $L_B/4$
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used.

Please note that the information provided in this handout is general in nature. If you have specific questions or need additional information, please contact a Community Development Department representative at (815) 356-3605, or via email at building@crystallake.org.