RESIDENTIAL DECK

Permit Application Guidelines

1. Submit to Community Development Building Division the following for review:
   a) Building permit application.
      Libertyville Municipal Code (LMC) 6-86(a), (b), (c) & (d)
   b) Two Copies of the Plat of Survey dimensionally locating the deck with regards to the property lines and any buildings on the site. **LMC 6-86(f)**
   c) Two copies of the deck pier and framing plans indicating dimensions and materials (with sizes) to be used in construction. Indicate height of deck above grade.
      LMC 6-86(e)
   d) Calculations indicating lot coverages.
2. The permit may be issued within 5 business days from date of submittal to Building Division if information submitted is complete. **LMC 6-87(a)**
3. Call **J.U.L.I.E.** at 1(800)892-0123 to locate any underground utility lines before start of construction.

Deck Construction Guidelines

1. All structural lumber, beams, wood deck flooring and other appurtenances shall be constructed of lumber that has received preservative treatment by the pressure process to prevent decay and rot. **2015 LMC 6-142(c)**
2. Framing and fasteners/connectors shall comply with the 2012 IRC code and recognized engineering practice. **2015 LMC 6-142(c)**
3. Piers shall be a minimum of eight (8) inches in diameter of poured concrete, with level bottom, forty-two (42) inches below grade; however, all pier diameters shall be designed for actual loads and soil bearing properties at the bearing level. **2015 LMC 6-142(c)**
4. Galvanized Simpson post anchors or equivalent (as approved by the Building Commissioner) shall be embedded in the concrete to receive the minimum 4 x 4 inch posts or larger, depending on actual loads. **2015 LMC 6-142(c)**
5. Handrails and boards shall be provided along open-sided floors, decks, landings and stairs which are more than three (3) risers or eighteen (18) inches above a floor or grade level below. **2015 LMC 6-142(c)**
6. The addition of a deck shall not exceed the maximum lot coverages. **LZC 4-2.5e & f, 4-3.5e & f, 4-4.5e & f, 4-5.5e & f, 4-6.5e & f, 4-7.5e & f, 4-8.5e & f & 4-9.5e & f, LMC 6-142b** Decks shall not be located within any easement. **LZC 9-3.2**
7. Decks located entirely within the rear fifty percent (50%) of a lot may be located not closer than five (5) feet to any side lot line or rear lot line. **LZC 4-2.5d4ii, 4-3.5d4ii, 4-4.5d4ii, 4-5.5d4ii, 4-6.5d4ii, 4-7.5d4ii, 4-8.5d4ii & 4-9.5d4ii**

Residential District Coverage and Setback Requirements

	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8
Minimum Yards (feet)*								
Front	50	50	40	30	30	30	30	30
Interior Side	30	20	20	10	10	5	5	5
Interior Side Aggregate	60	40	40	25	20	15	15	15
Corner Side	50	50	40	30	30	30	30	30
Rear	75	60	50	40	40	35	25	20
Maximum Lot Coverage (Percent)								
Interior Lot	30	30	35	40	45	45	50	60
Corner Lot	25	25	30	35	40	40	45	55

See attached sample and framing schedules for reference only.

PIER SIZING

Use 8" diameter piers if:
- Piers are spaced 5' apart and joists are 5.5' long
- Piers are spaced 6' apart and joists are 4.5' long

Use 10" diameter piers if:
- Piers are spaced 6' apart and joists are 7' long
- Piers are spaced 7' apart and joists are 5.5' long
- Piers are spaced 8' apart and joists are 4.5' long

Use 12" diameter piers if:
- Piers are spaced 7' apart and joists are 7' long
- Piers are spaced 8' apart and joists are 6' long
- Piers are spaced 9' apart and joists are 5.5' long

Libertyville
spirit of independence

SAMPLE ONLY

FRAME DECK ATTACHED TO EXISTING STRUCTURE

Do not submit for permit--
Submit drawings of your design to scale.

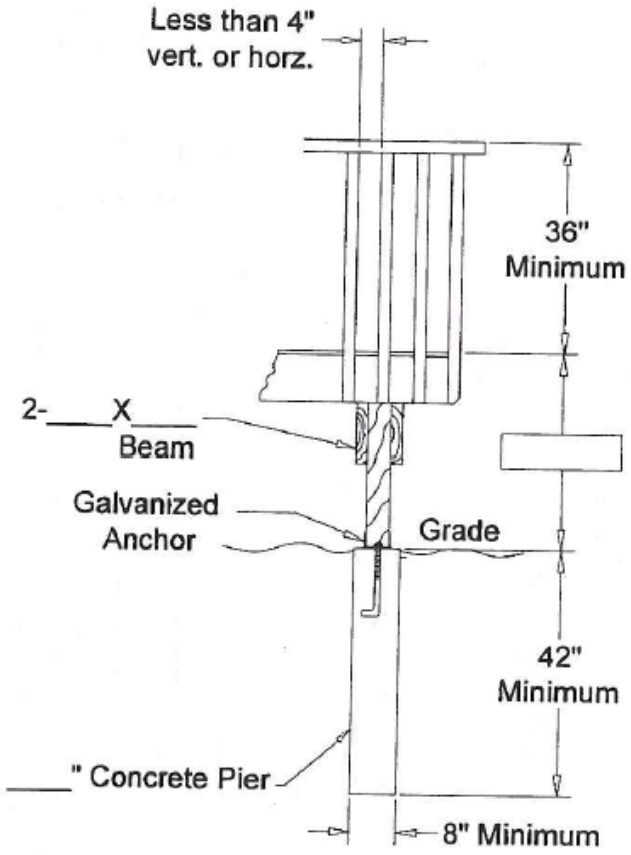
Show dimensions indicated by
[ ] and ____

Dimensions shown are Building Code Minimums.

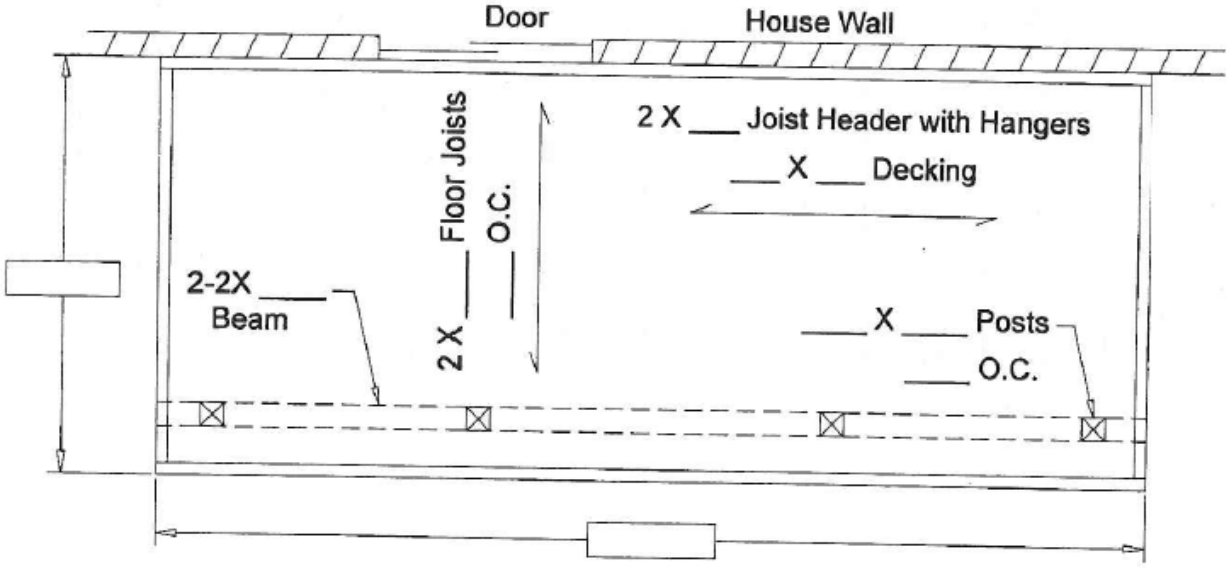
Show grade, species and size of the treated lumber.

Loading on deck: 60# live load.

Any floor or stair surface located more that 3 risers or 18" above a floor or grade shall have guardrails and/or handrails.



SAMPLE ONLY

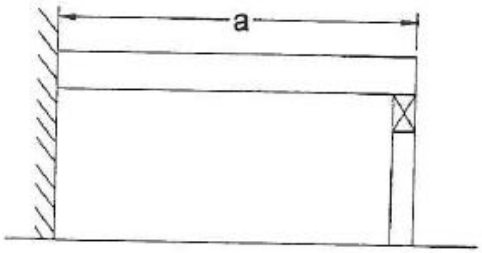


DECK JOIST AND BEAM SIZES

JOIST LENGTH

POST SPACING

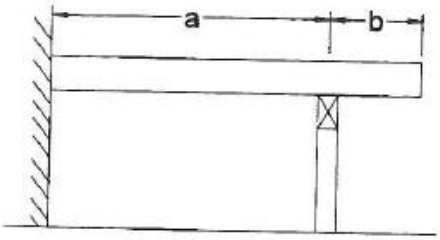
		6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
4'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	1 – 2x6	1 – 2x6 1 – 2x8	1 – 2x6 1 – 2x8	1 – 2x8 1 – 2x10	1 – 2x8 1 – 2x10	1 – 2x8 1 – 2x10	1 – 2x8 1 – 2x10	1 – 2x10 1 – 2x12	1 – 2x10	1 – 2x10 1 – 2x12	1 - 2x12
5'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	1 – 2x6	1 – 2x6 1 – 2x8	2 – 2x6 1 – 2x8	1 – 2x8 1 – 2x10	1 – 2x8 1 – 2x10	1 – 2x8 1 – 2x10	1 – 2x8 1 – 2x10	1 – 2x10 1 – 2x12	1 – 2x10	1 – 2x10 1 – 2x12	1 - 2x12
6'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	2 – 2x6	2 – 2x6 1 – 2x8	2 – 2x6 2 – 2x8	2 – 2x8 1 – 2x10	2 – 2x8 1 – 2x10	2 – 2x8 1 – 2x10	2 – 2x8 1 – 2x10	2 – 2x10 1 – 2x12	2 – 2x10 1 – 2x12	2 – 2x10 1 – 2x12	2 – 2x10 1 - 2x12
7'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	2 – 2x6	3 – 2x6 2 – 2x8	3 – 2x6 2 – 2x8	2 – 2x8 2 – 2x10	2 – 2x8 2 – 2x10	2 – 2x8 2 – 2x10	3 – 2x8 2 – 2x10	2 – 2x10 1 – 2x12	2 – 2x10 2 – 2x12	2 – 2x10 2 – 2x12	2 – 2x10 2 - 2x12
8'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	3 - 2x6 2 – 2x8	3 – 2x6 2 – 2x8	3 – 2x6 2 – 2x8	3 – 2x8 2 – 2x10	3 – 2x8 2 – 2x10	3 – 2x8 2 – 2x10	3 – 2x8 2 – 2x10	2 – 2x10 2 – 2x12	3 – 2x10 2 – 2x12	3 – 2x10 2 – 2x12	3 – 2x10 2 - 2x12
9'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	3 - 2x6 2 – 2x8	4 – 2x6 3 – 2x8	4 – 2x6 3 – 2x8	3 – 2x8 2 – 2x10	3 – 2x8 2 – 2x10	3 – 2x8 2 – 2x10	4 – 2x8 3 – 2x10	3 – 2x10 2 – 2x12	3 – 2x10 2 – 2x12	3 – 2x10 2 – 2x12	3 – 2x10 2 - 2x12
10'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	4 – 2x6 3 – 2x8	3 – 2x8 2 – 2x10	3 – 2x8 2 – 2x10	3 – 2x8 3 – 2x10	4 – 2x8 3 – 2x10	4 – 2x8 3 – 2x10	4 – 2x8 3 – 2x10	3 – 2x10 2 – 2x12	3 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 - 2x12
11'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	3 – 2x8 2 – 2x10	3 – 2x8 2 – 2x10	4 – 2x8 3 – 2x10	4 – 2x8 3 – 2x10	3 – 2x10 2 – 2x12	3 – 2x10 3 – 2x12	3 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 - 2x12
12'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	3 – 2x8 2 – 2x10	4 – 2x8 3 – 2x10	4 – 2x8 3 – 2x10	3 – 2x10 2 – 2x12	3 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	3 – 2x12	3 – 2x12	3 - 2x12
13'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	3 – 2x8 3 – 2x10	4 – 2x8 3 – 2x10	3 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	3 – 2x12	4 – 2x12	4 – 2x12	4 - 2x12
14'	Joist Size	2x6 24" OC	2x6 16" OC 2x8 24" OC	2x6 16" OC 2x8 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 16" OC 2x10 24" OC	2x8 12" OC 2x10 16" OC	2x10 16" OC 2x12 24" OC	2x10 16" OC	2x10 12" OC 2x12 16" OC	2x12 16" OC
	Beam Size	4 – 2x8 3 – 2x10	3 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	4 – 2x10 3 – 2x12	3 – 2x12	4 – 2x12	4 – 2x12	4 – 2x12	Engineered Beam Req'd	Engineered Beam Req'd



Case 1 Solution: Refer to table for joist and beam sizes.

Example: a = 12', Post Spacing = 8'

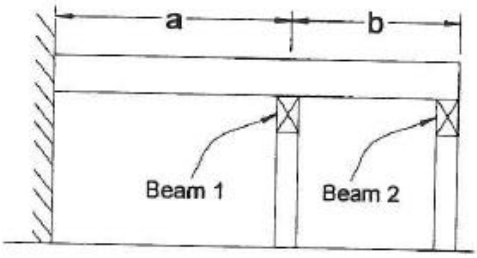
Refer to the span table. Joist size may be either 2x8's 12" OC or 2x10's 16" OC. Beam size may be either 3-2x8's x or 2-2x10's.



Case 2 Solution: Use "a" for joist size and "a" + "b" to determine beam size. (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'

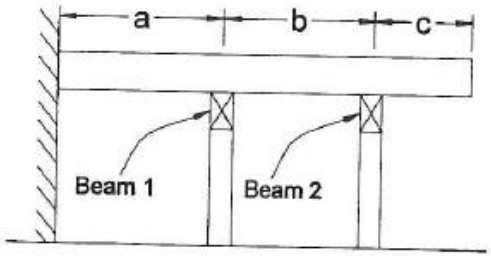
Find the joist size required by looking under 8' on the table. Joist length is indicated as 2x6's 16" OC or 2x8's 24" OC. For sizing the beam, use a joist length of 10' (8' + 2' = 10') and a post spacing of 10'. The table indicates that 4-2x8's or 3-2x10's are required for the beam.



Case 3 Solution: Use "a" or "b", whichever is greater, to determine joist size. Use "a" + "b" to determine the size of Beam No. 1 and use joist length "b" to determine the size of Beam No. 2.

Example: a = 6', b = 7', Post Spacing = 9'

The joist length (7') is determined by the longest span joist ("b"). The table indicates that 2x6's 16" OC or 2x8's 24" OC are required for a 7' span. For Beam No. 1, use joist length of 13' (6' + 7' = 13') and post spacing of 9'. The table indicates that 3-2x10's or 2-2x12's are required for Beam No. 1. For Beam No. 2 use joist length of 7' with a post spacing of 9'. The table indicates that 4-2x6's or 3-2x8's are required for Beam No. 2.



Case 4 Solution: Use "a" or "b", whichever is greater, to determine joist size. Use "a" + "b" to determine joist size. Use "a" + "b" to determine the size of Beam No. 1 and "b" + "c" to determine the size of Bean No. 2 (The length of "c" is restricted by both the length of "b" and the size of the joist).

Example: a = 7', b = 8', c = 2', Post Spacing = 12'

The longest joist span is 8'; therefore, the table indicates that 2x6's 16" OC or 2x8's OC are required. For Beam No. 1, use joist length of 15' (7' + 8' = 15') and post spacing of 12'. The table indicates that 3-2x12's are required for Beam No. 1. For Beam No. 2, use joist length of 10' (8' + 2' = 10') and post spacing of 12'. The table indicates that 3-2x10's or 3-2x12's are required for Beam No. 2

Notes: Post size must be adequate to provide full beam bearing, ie. one-member and two-member beams must be placed on a 4x4 post, three–member beams must be placed on 4x6 or 6x6 posts, and four-member beams must be placed on 8x8 posts.

Most of the boxes in this table contain two optional means of support. Wood members may be increased above those indicated in the table, but in no event may lesser members be used.