

# Decks

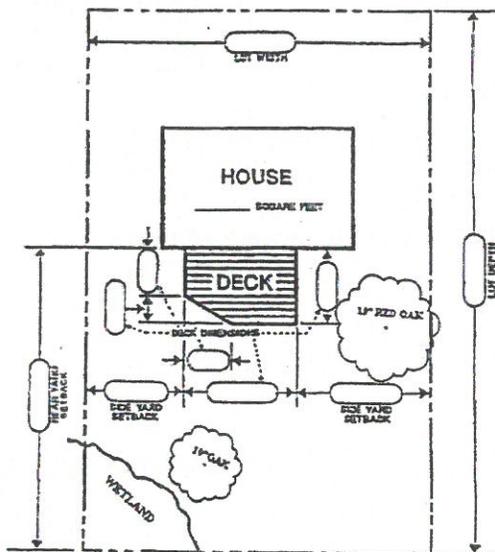
## Information Sheet

City of  
**minnetonka**  
Where quality is our nature

BUILDING PERMITS ENSURE THAT MINNETONKA MEETS LOCAL, STATE, AND FEDERAL BUILDING STANDARDS AND CODES. THEY ALSO HELP PROTECT THE HEALTH, SAFETY, AND WELFARE OF THE COMMUNITY.

## Zoning Requirements

1. Setbacks from property lines vary depending on zoning. Call the Planning Department (952-939-8290) for setback information. Visit the Inspections Department for the following information:
  - a current survey (required on all building permits)
  - any variances granted to your property
  - any soil corrections done on existing house
  - verification of permits and inspections for the original deck, if it will be replaced with a deck of the same size and design



## Required Inspections

1. **Footing:** Before concrete is poured.
2. **Framing:** Before decking is installed if deck is less than 48 inches above grade, anytime after framing is completed if deck is 48 inches or more above grade.
3. **Final:** Before deck is occupied.

Other inspections may be required by the Building Inspector to assure code compliance.

## Call Before You Dig



Call at least 2 full business days before you dig.

651-454-0002 or  
800-252-1166

[www.gopherstateonecall.org](http://www.gopherstateonecall.org)

## Building Permit Requirements

1. Submit a certified survey showing setbacks from property line. (If there isn't an as-built survey on file, you will have to locate survey corner stakes to verify the setback.)
2. Submit two complete sets of construction drawings showing proposed design and materials, which should include:
  - 1/4" = one foot scaled foundation plan (see example inside) showing:
    - overall dimensions
    - Size: dimensions/elevations of footings, posts, beams
    - direction, materials, size, and spacing of floor joists
    - size and anchoring of ledger board
  - 1/4" = one foot scaled floor plan showing:
    - overall dimensions
    - materials
    - location and size of stairs
  - 3/8" = one foot (minimum) scaled wall section (see example inside) showing:
    - size, depth, and shape of footings
    - beams, joists, decking material, anchors, and guardrail construction
    - all vertical dimensions

Additional information may be required, including:

- soil tests (If existing house is on piles or other soil correction, then the deck foundation must be engineered.)
- elevations
- important details

## Three Inspection Musts

1. Post the inspection report card on the job site until the final inspection is completed. Make sure it is protected from the weather.
  2. Notify Inspections when each phase is ready for inspection.
  3. Schedule all inspections at least 24-48 hours in advance (please have your permit number available).
- You can reach the Inspections Department between 7:30 am and 4:30 pm at 952-939-8394.

## Building Code Requirements

### Footings

- Frost footings must be protected horizontally and vertically to a depth of 42".
- Footings must be on undisturbed soil.

### Joists & Ledger Boards

- Ledger board must be anchored to existing rim joist with 1/2-inch lag bolts minimum at eight inches OC staggered. Alternate ledger anchoring must be identified and approved before permit is issued.
- Anchor floor joists to ledger board and flush beams with joist hangers of appropriate size. Make certain correct fasteners are used in double shear joist hangers.
- Joist hangers and fasteners must be approved for use with treated material. (stainless steel, hot dipped galvanizes, etc.)

### Posts

- Buried posts must be surrounded with granular fill for drainage.
- Maximum height for a 4x4 post is 8 feet. Maximum height for a 6x6 post is 14 feet. A post higher than 14 feet must be engineered.

### Guardrails

- Decks 30 inches or more above grade require a 36-inch minimum high guardrail. Open guardrails shall have intermediate rails so that a 4-inch-diameter sphere cannot pass through. (34"-38" high on stairs and 4 3/8" Max openings)

### Flashing

All connections between deck and dwelling must be waterproofed. Deck ledger must be flashed and end dammed to prevent moisture intrusion.

### Cantilever

No deck attachment to cantilever unless designed for additional weight.

### Stairs

- Stairway shall be at least 36 inches wide with a 7 3/4-inch maximum rise and a 10-inch minimum run. A four-inch-diameter sphere cannot pass through riser. (3/8" Max variation in riser height and tread depth)
- Stair and landing illumination is required.
- A continuous handrail, 34" - 38" above nosing of treads, shall be provided for all stairs having four or more risers. Handrails must not have open ends.
- Stair stringers shall be a maximum 18 inches OC. With composite deck, stringer spacing shall be per manufacturer's instructions.

### Use Approved Materials

- All materials used for posts, joists, beams, and decking shall be approved treated wood or approved wood of natural resistance to decay, such as cedar, redwood, or composite decking material.
- Not all composite decking materials are approved for use in Minnesota. Check with the Inspections Department for verification.
- All fasteners shall be of approved materials and grades.

Diameter	Area		Soil Load Bearing Capacity Pounds Per Square Foot				
	in <sup>2</sup>	ft <sup>2</sup>	1000	1500	2000	2500	3000
8"	50.77	.35	350	525	700	875	1050
9"	63.62	.44	440	660	880	1100	1320
10"	78.54	.55	550	825	1100	1375	1650
11"	95.03	.66	660	990	1320	1650	1980
12"	113.09	.79	790	1185	1580	1975	2370
13"	132.73	.92	920	1380	1840	2300	2760
14"	153.94	1.07	1070	1605	2140	2675	3210
15"	176.76	1.23	1230	1845	2460	3075	3690
16"	201.06	1.40	1400	2100	2800	3500	4200
17"	226.96	1.56	1560	2340	3120	3900	4680
18"	254.47	1.77	1770	2655	3540	4425	5310
19"	283.53	1.97	1970	2955	3940	4925	5910
20"	314.16	2.18	2180	3270	4360	5450	6540
21"	346.36	2.41	2410	3615	4820	6025	7230
22"	380.13	2.64	2640	3960	5280	6500	7920
23"	415.48	2.89	2890	4335	5780	7225	8670
24"	452.39	3.14	3140	4710	6280	7850	9420

### EXAMPLE

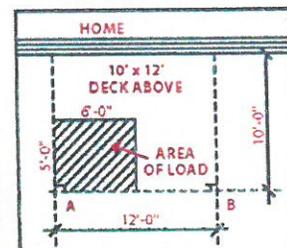
To figure load on footing A in example below:

Total Load On Soil = Area x (Dead Load + Live Load)

• Area of load on footing: 5' x 6' = 30 square feet

• Dead Load + Live Load for deck = pounds per square foot (psf). This example uses 50 psf.

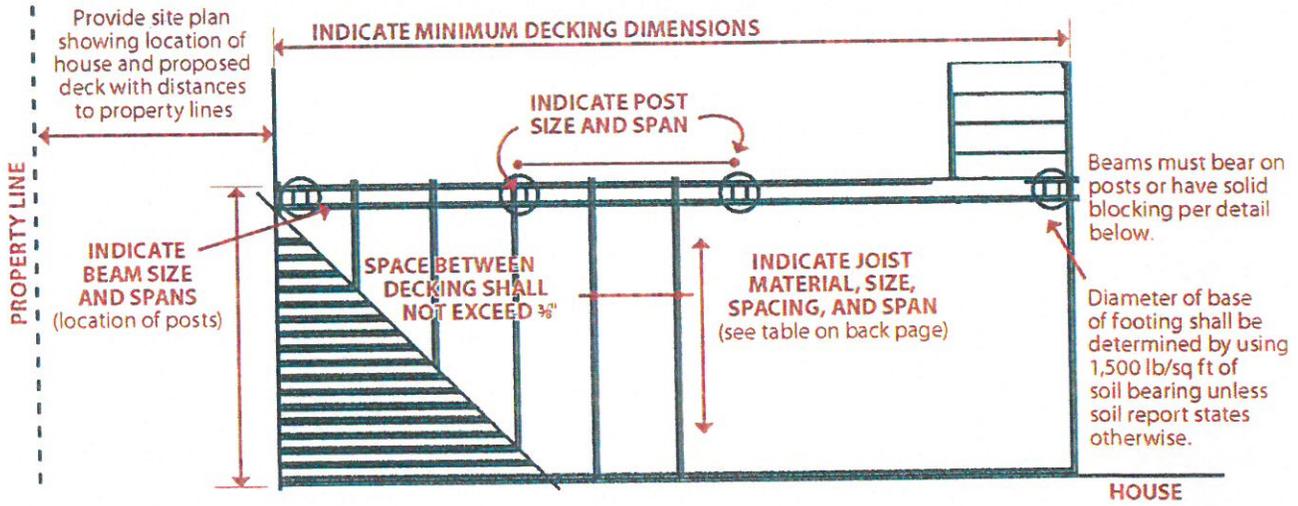
• Total Load On Soil = 30 square feet x 50 psf = 1,500 lbs



For typical soil conditions, you would use the 1,500 column in the Post Footings table. Go down the column until you come to a number larger than 1,500 (in this case 1605). Read to the left for 14"-diameter size footing.

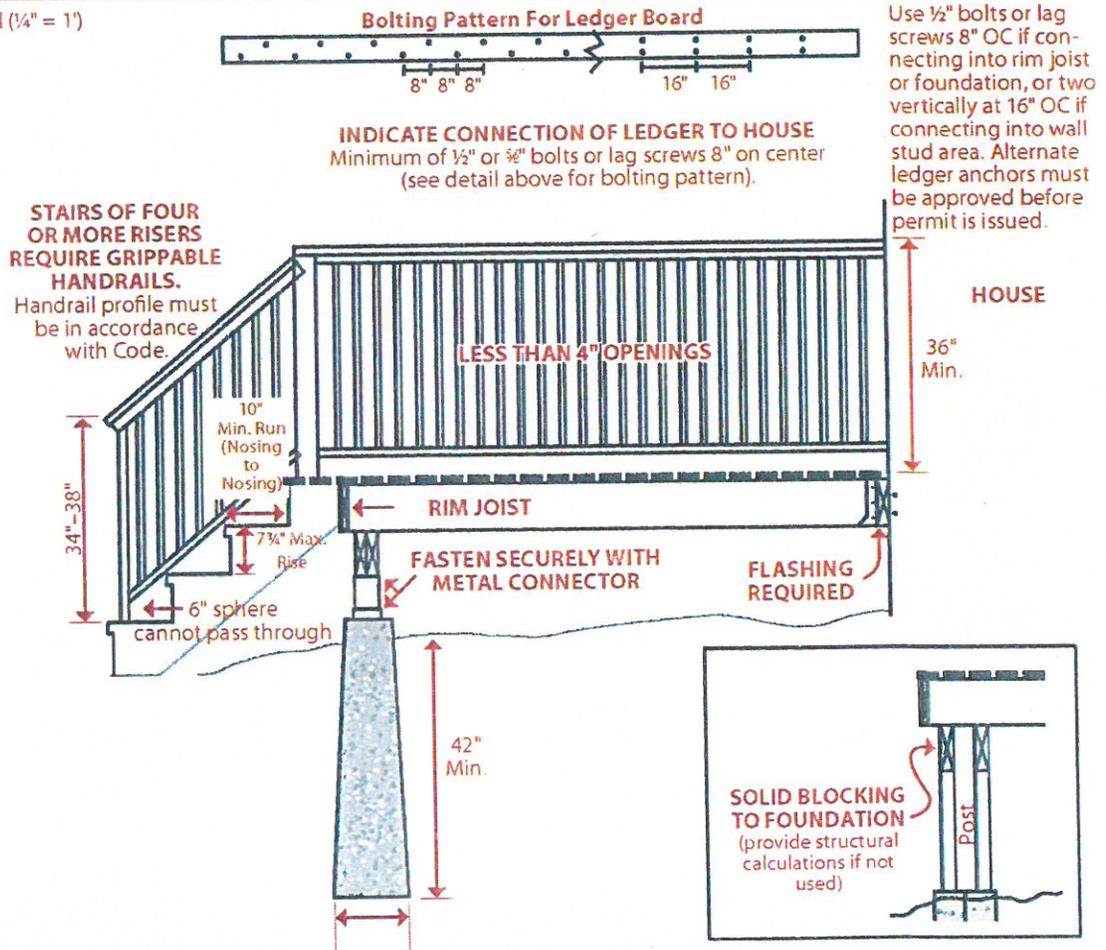
## EXAMPLE: FOUNDATION PLAN

Indicate Scale Used ( $\frac{1}{4}'' = 1'$ )



## EXAMPLE: WALL SECTION PLAN

Indicate Scale Used ( $\frac{1}{4}'' = 1'$ )



# Joist & Beam Size Chart

		Joist Length												
		6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'		
Post Spacing	4'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC		2x10 12" OC		
		Beam Size	1- 2x6	1- 2x6	1- 2x6	1- 2x8	1- 2x8	1- 2x8	1- 2x8	1- 2x10	1- 2x10	1- 2x10	1- 2x12	1- 2x12
	5'	Joist Size	2x6 24" OC	2x6 16" OC	2x8 24" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC
		Beam Size	1- 2x6	2- 2x6	2- 2x6	1- 2x8	1- 2x8	1- 2x8	1- 2x8	1- 2x10	1- 2x10	1- 2x12	1- 2x12	1- 2x12
	6'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC
		Beam Size	2- 2x6	2- 2x6	2- 2x6	2- 2x8	2- 2x8	2- 2x8	2- 2x8	2- 2x10	2- 2x10	2- 2x12	2- 2x12	2- 2x12
	7'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC
		Beam Size	2- 2x6	3- 2x6	3- 2x6	2- 2x8	2- 2x8	2- 2x8	3- 2x8	2- 2x10	2- 2x10	2- 2x12	2- 2x12	2- 2x12
	8'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC
		Beam Size	3- 2x6	3- 2x6	3- 2x6	3- 2x8	3- 2x8	3- 2x8	3- 2x8	2- 2x10	3- 2x10	3- 2x12	3- 2x12	3- 2x12
	9'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC
		Beam Size	3- 2x6	4- 2x6	4- 2x6	3- 2x8	3- 2x8	3- 2x8	4- 2x8	3- 2x10	3- 2x10	3- 2x12	3- 2x12	3- 2x12
	10'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC
		Beam Size	4- 2x6	3- 2x8	3- 2x8	3- 2x8	4- 2x8	4- 2x8	4- 2x8	3- 2x10	3- 2x10	4- 2x10	4- 2x10	4- 2x10
11'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC	
	Beam Size	3- 2x8	3- 2x8	4- 2x8	4- 2x8	3- 2x10	3- 2x10	3- 2x10	4- 2x10	4- 2x10	4- 2x12	4- 2x12	4- 2x12	
12'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC	
	Beam Size	3- 2x8	4- 2x8	4- 2x8	3- 2x10	3- 2x10	4- 2x10	4- 2x10	4- 2x10	4- 2x10	3- 2x12	3- 2x12	3- 2x12	
13'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC	
	Beam Size	3- 2x8	4- 2x8	3- 2x10	4- 2x10	4- 2x10	4- 2x10	4- 2x10	3- 2x12	3- 2x12	4- 2x12	4- 2x12	4- 2x12	
14'	Joist Size	2x6 24" OC	2x6 16" OC	2x6 16" OC	2x8 16" OC	2x8 16" OC	2x8 16" OC	2x8 12" OC	2x10 16" OC	2x10 16" OC	2x12 16" OC	2x12 16" OC	2x12 16" OC	
	Beam Size	4- 2x8	3- 2x10	4- 2x10	4- 2x10	4- 2x10	3- 2x12	4- 2x12	4- 2x12	4- 2x12	Eng. Beam Required	Eng. Beam Required	Eng. Beam Required	

This table is based on the use of Ponderosa Pine No. 2 or better (treated for weather and/or ground exposure).