



Deck
Requirements for Building Permit Application

1. Complete Building Permit application form with signature
2. Submit two (2) copies, drawn to scale, indicating the lot dimensions, the location and ground coverage are of existing structure(s), and the location and area of the proposed structure. Indicate the setbacks from property lines.
3. Submit two (2) copies of plans showing proposed designs and materials. Plans shall be drawn to scale and shall include the following information:
 - A floor plan indicating the proposed deck size, type of lumber used, size of decking, size and spacing of floor joists, size, location and spacing of posts.
 - Elevations indicating the height of structure from established grade, diameter and depth of footings, guardrail height (if any), spacing of intermediate rails (if any).

General Building Requirements

1. Floor joist spacing at twenty-four (24) inches on center requires two (2) inch minimum decking and floor joist spacing at sixteen (16) inches on center requires one (1) inch minimum decking.
2. Decks shall be capable of supporting a fifty (50) pound per square foot load.
3. Frost footings are required for any deck attached to any structure that has frost footings.
4. All decks shall be designed to support a live load of 40 pounds per square foot.
5. Guardrails are required on all decks more than 30 inches above grade or floor below. Rail must be 36 inches minimum in height. Open guardrails and stair railings must have intermediate rails or an ornamental pattern that a four-inch sphere cannot pass through. **Exception:** The triangular opening formed by the riser, tread and bottom element of a guardrail may be sized so that a six inch sphere cannot pass through.
6. Cantilevers (overhanging joists and beams)—joists should not overhang by more than two feet, nor should beams overhang posts by more than one foot unless a special design is approved.
7. All connections between deck and dwelling shall be weatherproof. Any cuts in exterior finish shall be flashed.
8. Header beams and joists that frame into ledgers or beams shall be supported by approved framing anchors such as joist hangers and fastened with hanger nails, not screws.
9. Nails and Screws—use only stainless, high strength aluminum or hot-dipped galvanized.
10. All exposed wood used in the construction of decks is required to be of approved wood of natural resistance to decay (redwood, cedar, etc.) or approved treated wood. This includes posts, beams, joists, decking and railings.
11. Stairs minimum width is 36 inches. Maximum rise is 8 inches; minimum rise is 4 inches. Minimum run is 9 inches. Largest tread width or riser height shall not exceed the smallest by more than **3/8 inch**. Stairways with 4 risers or more requires a handrail. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4 inch sphere.
12. Decks shall not be hung from the cantilever of a house unless joists/trusses are engineered to carry additional deck load.
13. Exterior stairways shall be provided with a means to illuminate the stairway and shall have a light source in the immediate vicinity of the top landing of the stairway.
14. The top of the handrail shall be placed not less than 34 inches or more than 38 inches above the nosing of the treads. The handgrip shall have a smooth surface with no sharp corners. Handrails shall be continuous the full length of stairs and returned at ends. The handgrip portion of handrails shall not be less than 1 1/4 inches or more than 2 5/8 inches and shall provide a grip-able surface.

Note: The aforementioned criterion represents general code requirements relative to decks. For specific code requirements, please contact the Building Inspection Department at 1-877-333-5620.

Required Inspections

1. Footing
2. Final

General Notes

1. Some deck designs may not be appropriate for future screen porch or 3-season porches. Setbacks for porches may not be the same as setbacks for decks.
 2. The approved Plan and Survey shall be kept on the job site until the final inspection has been made.
 3. The Inspection Record Card shall be posted until the final inspection has been made.
 4. Post Address on construction site visible from the street.
- *The State of Minnesota requires that all residential building contractors, remodelers and roofers obtain a state license unless they qualify for a specific exemption from the licensing requirements. Any person claiming an exemption must provide a copy of a Certificate of Exemption from the Department of Commerce to the City before a permit can be issued.*
 - *To determine whether a particular contractor is required to be licensed or to check on the licensing status of individual contractors, please call the Minnesota Department of Commerce at 651-296-2594 or toll free at 1-800-657-3602.*

If you should have any questions, please call the Building Official.

Supplement to Deck Permit Application

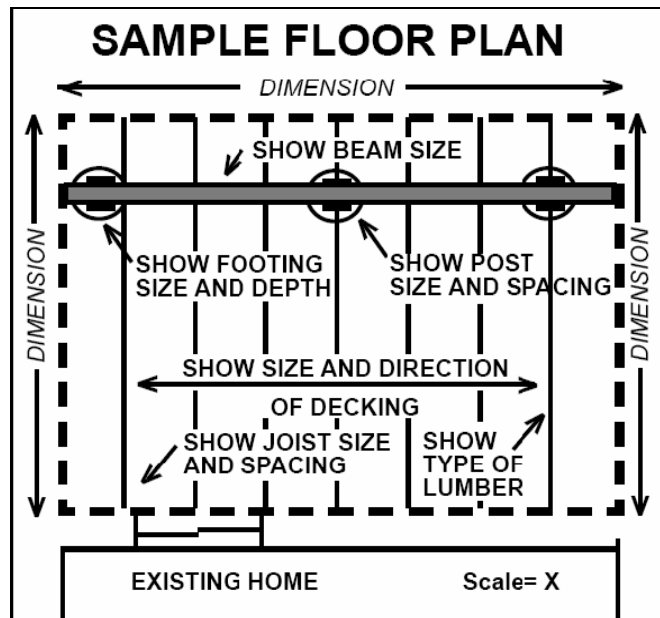
Plans and all following information are required with Deck permit applications.

A	Size and depth of footing	_____
B	Size and spacing of posts	_____
C	Type of lumber	_____
D	Size of beams	_____
E	Size and spacing of joists	_____
F	Type of floor boards	_____
G	Height of deck off ground	_____
H	Height and design of guardrail	_____
I	Size of Deck	_____
J	Distance to property lines	
	Side 1	_____
	Side 2	_____
	Rear	_____
	Other	_____

Decks

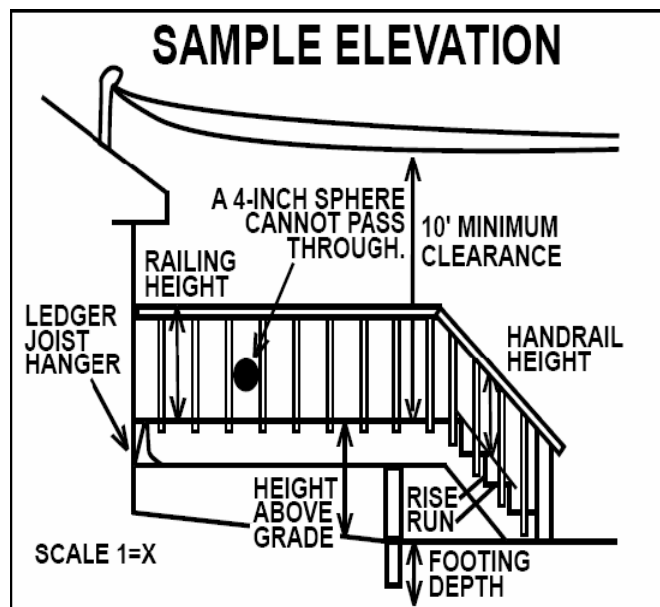
Floor plan showing:

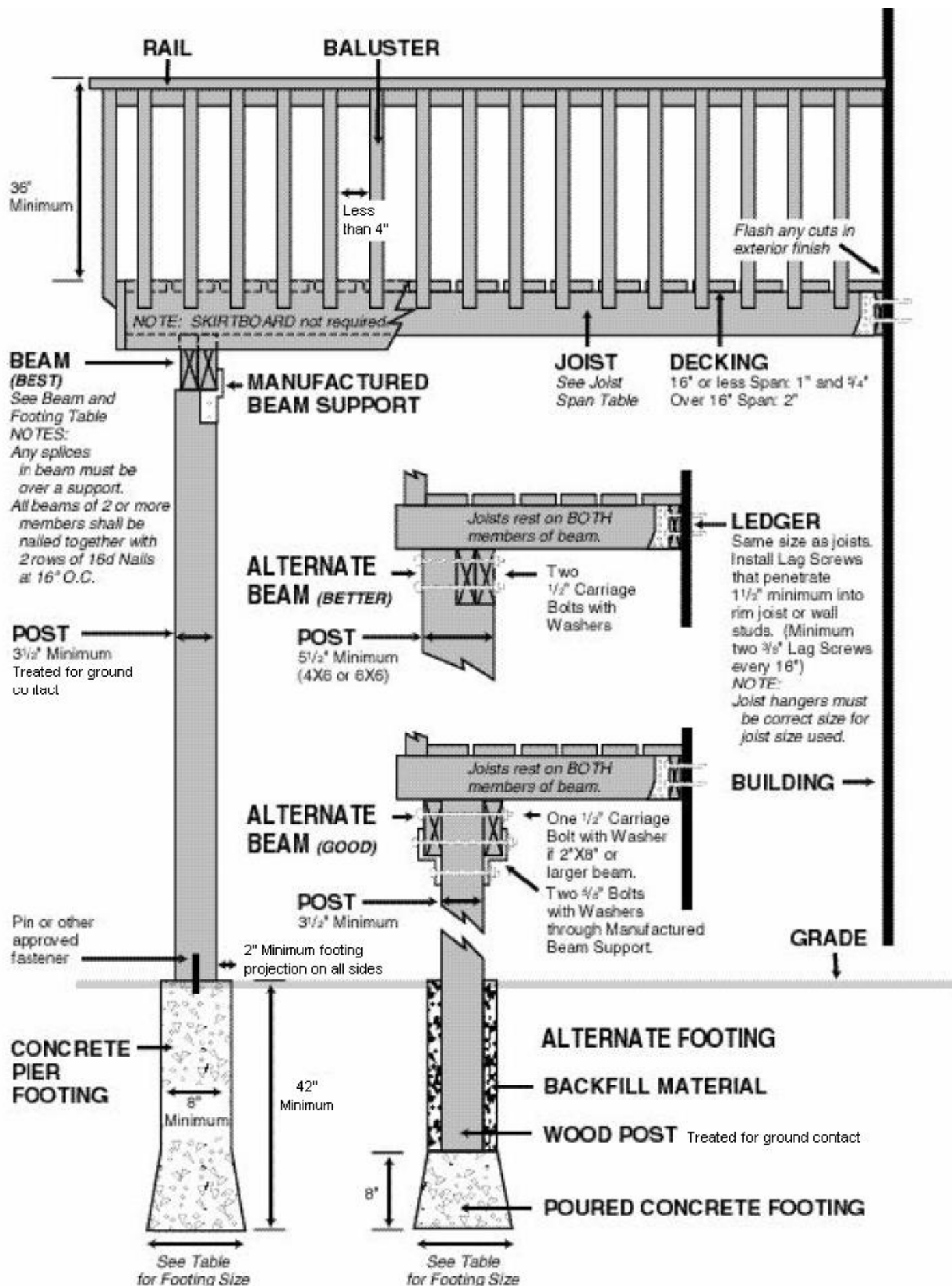
1. Proposed deck size.
2. Size and spacing of floor joists.
3. Size and type of decking material.
4. Size, type and direction of beams.
5. Size, type, location and spacing of posts.
6. Size, location and spacing of footings.



Elevation plan showing:

1. Height of structure from grade.
2. Size and depth of footings
3. Guard height and spacing
4. Stairway rise and run and handrail height.
5. Clearance of over-head wires



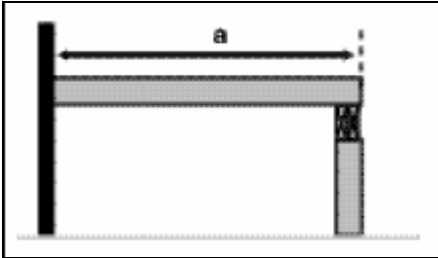


Decks

SIZING DECK COMPONENTS

REFER TO TABLES FOR JOIST, BEAM AND FOOTING SIZE REQUIREMENTS ON THE FOLLOWING PAGES.

Example 1: $a = 12'$; Post Spacing = 8'



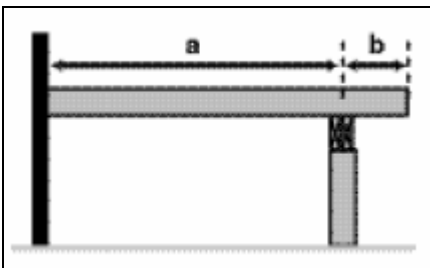
Use the **Maximum Joist Spans** table to find the acceptable joist sizes for a 12' span based on the species of lumber your supplier offers, e.g. Douglas Fir- Larch 2×8s spaced at 16" on center (O.C.).

Use the **Beam and Footing Sizes** table and find the 8' post spacing column.

With a 12' total joist length, the beam may be either two 2×8s or two 2×10s depending on wood used. The footing diameter at the base must be a minimum of 14" for each corner post and 19" for all intermediate posts.

Example 2: $a = 8'$, $b = 2'$; Post Spacing = 10'

Use "a" to determine joist size and "a" + "2b" to determine beam and footing sizes. The length of "b" is restricted by both the length of "a" and the size of the joists.



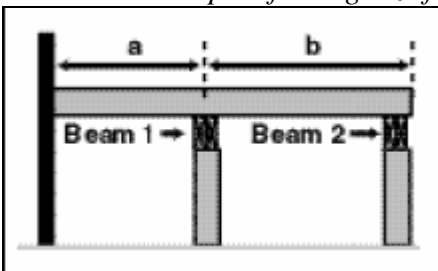
Refer to the **Maximum Joist Spans** table. For an 8' joist span, 2×8s from any species could be used with 24" O.C. spacing.

For sizing the beam, use a joist length of 12' (8' + 4') and a post spacing of 10'.

The **Beam and Footing Sizes** table indicates that the beam may be either two 2×10s or two 2×12s, depending on the wood species used. The footing diameter at the base must be a minimum of 15" for each corner post and 21" for all intermediate posts.

Example 3: $a = 6'$, $b = 7'$; Post Spacing = 9'

Use "a" or "b", whichever is greater, to determine joist size. Use "a" + "b" to determine the size of Beam 1 and the post footing size for the footings supporting Beam 1. Use joist length "b" to determine both the size of Beam 2 and the post footing size for the posts supporting Beam 2.



Joist size is determined by using the longest span joist (7'). The **Maximum Joist Spans** table indicates that 2×6s spaced at 24" O.C. would be adequate for this span.

For Beam 1 and footings, use a joist length of 13' (6' + 7') and a post spacing of 9'. The **Beam and Footing Sizes** table indicates that the beam may be two 2×10s or two 2×12s depending on the wood species used. The footing diameters for Beam 1 posts shall be a minimum of 15" for the corner (outside) posts and 21" for all intermediate posts.

For Beam 2 and footings use a joist length of 7' and post spacing of 9'. The beam may be two 2×8s or two 2×10s depending on the wood species used. The footing diameters for Beam 2 must be a minimum of 12" for the corner posts and 16" for all intermediate posts.

Decks

BEAM AND FOOTING SIZES

	Species or Group	Post Spacing										
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
6'	Douglas Fir-Larch	(1) 2x6	(1) 2x6	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10
	Hem-Fir	(1) 2x6	(1) 2x6	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10
	Southern Pine	(1) 2x6	(1) 2x6	(1) 2x6	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x10
	Western Woods	(1) 2x6	(1) 2x6	(1) 2x8	(2) 2x8	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10
	Corner Footing	8	8	9	10	10	11	12	12	13	13	14
7'	Intermediate Footing	10	12	13	14	14	15	16	17	18	18	19
	Douglas Fir-Larch	(1) 2x6	(1) 2x6	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10
	Hem-Fir	(1) 2x6	(1) 2x8	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10
	Southern Pine	(1) 2x6	(1) 2x6	(1) 2x6	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x10
	Western Woods	(1) 2x6	(1) 2x6	(1) 2x8	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x10
8'	Corner Footing	8	9	10	10	11	12	12	13	13	14	14
	Intermediate Footing	11	12	13	14	15	16	17	18	19	19	20
	Douglas Fir-Larch	(1) 2x6	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12
	Hem-Fir	(1) 2x6	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x10	(3) 2x12
	Southern Pine	(1) 2x6	(1) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12
9'	Western Woods	(1) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x10	(2) 2x10	(3) 2x10	(3) 2x10	(3) 2x12
	Corner Footing	8	9	10	11	12	12	13	13	14	15	15
	Intermediate Footing	12	13	14	15	16	17	18	19	20	20	21
	Douglas Fir-Larch	(1) 2x6	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x10	(3) 2x12
	Hem-Fir	(1) 2x8	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12
10'	Southern Pine	(1) 2x6	(1) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10
	Western Woods	(1) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x10	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Corner Footing	9	10	11	12	13	13	14	15	15	16	17
	Intermediate Footing	13	14	15	17	18	19	20	21	21	22	23
	Douglas Fir-Larch	(1) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x10	(3) 2x12	(3) 2x12
11'	Hem-Fir	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Southern Pine	(1) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12
	Western Woods	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Corner Footing	9	10	11	12	13	14	15	15	16	17	17
	Intermediate Footing	13	15	16	17	18	19	20	21	22	23	24
12'	Douglas Fir-Larch	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Hem-Fir	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Southern Pine	(1) 2x8	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x10	(3) 2x12
	Western Woods	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Corner Footing	10	11	12	13	14	14	15	16	17	17	18
13'	Intermediate Footing	14	15	17	18	19	20	21	22	23	24	25
	Douglas Fir-Larch	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Hem-Fir	(1) 2x8	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x10	(3) 2x12	Eng Bm	Eng Bm
	Southern Pine	(1) 2x8	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12
	Western Woods	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(2) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
14'	Corner Footing	10	11	12	13	14	15	16	16	17	18	18
	Intermediate Footing	14	16	17	18	20	21	23	24	25	26	27
	Douglas Fir-Larch	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Hem-Fir	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Southern Pine	(1) 2x8	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	(3) 2x12
15'	Western Woods	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm	Eng Bm
	Corner Footing	11	12	13	14	15	16	17	17	18	19	20
	Intermediate Footing	15	17	18	19	21	22	23	24	25	26	27
	Douglas Fir-Larch	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Hem-Fir	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x10	(3) 2x12	Eng Bm	Eng Bm	Eng Bm
16'	Southern Pine	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Western Woods	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(3) 2x10	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm	Eng Bm
	Corner Footing	11	12	13	14	15	16	17	18	19	19	20
	Intermediate Footing	15	17	19	20	21	23	24	25	26	27	28
	Douglas Fir-Larch	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm

Decks

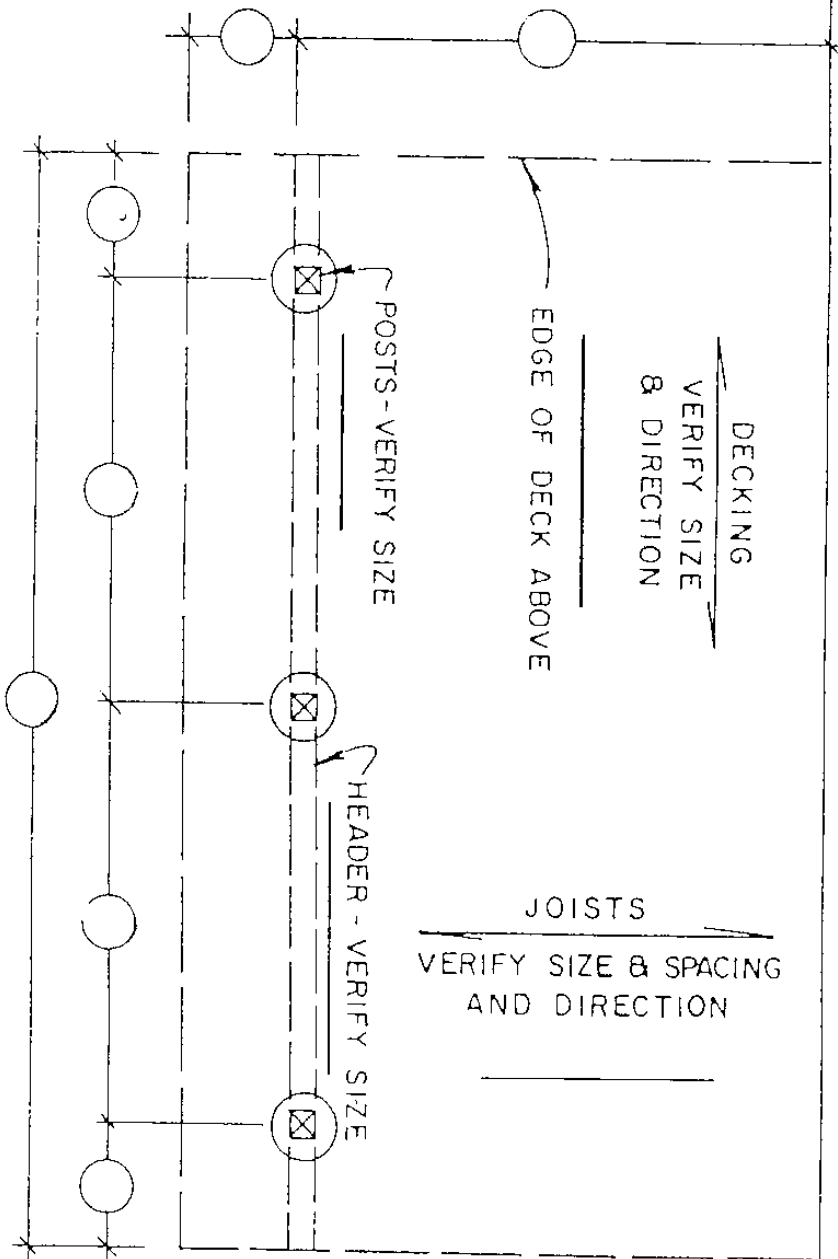
MAXIMUM JOIST SPANS

BEAM AND FOOTING SIZES – NEXT PAGE

Based on No. 2 or better wood grades. Naturally decay resistant or treated for weather and/or ground exposure.
(Design load = 40 psf LL + 10 psf DL. Deflection = L/360)

Species or Group	2 × 6				2 × 8				2 × 10				2 × 12			
	spacing on center				spacing on center				spacing on center				spacing on center			
	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
Douglas Fir-Larch	10'-9"	9'-9"	9'-1"	8'-1"	14'-2"	12'-7"	11'-6"	10'-3"	17'-9"	15'-5"	14'-1"	12'-7"	20'-7"	17'-10"	16'-3"	14'-7"
Douglas Fir-South	9'-9"	8'-10"	8'-4"	7'-9"	12'-10"	11'-8"	11'-0"	10'-2"	16'-5"	14'-11"	13'-10"	12'-5"	19'-11"	17'-7"	16'-1"	14'-4"
Hem-Fir	10'-0"	9'-1"	8'-7"	7'-11"	13'-2"	12'-0"	11'-3"	10'-2"	16'-10"	15'-2"	13'-10"	12'-5"	20'-4"	17'-7"	16'-1"	14'-4"
Southern Pine	10'-4"	9'-5"	8'-9"	7'-10"	13'-8"	12'-5"	11'-4"	10'-2"	17'-5"	15'-10"	14'-8"	13'-1"	21'-2"	18'-10"	17'-2"	15'-5"
Spruce- Pine-Fir	10'-3"	9'-4"	8'-9"	7'-1"	13'-6"	12'-3"	11'-6"	10'-3"	17'-3"	15'-5"	14'-1"	12'-7"	20'-7"	17'-10"	16'-3"	14'-7"
Western Woods	9'-2"	8'-4"	7'-10"	7'-2"	12'-1"	11'-0"	10'-1"	9'-0"	15'-5"	13'-6"	12'-4"	11'-0"	18'-1"	15'-8"	14'-4"	12'-10"

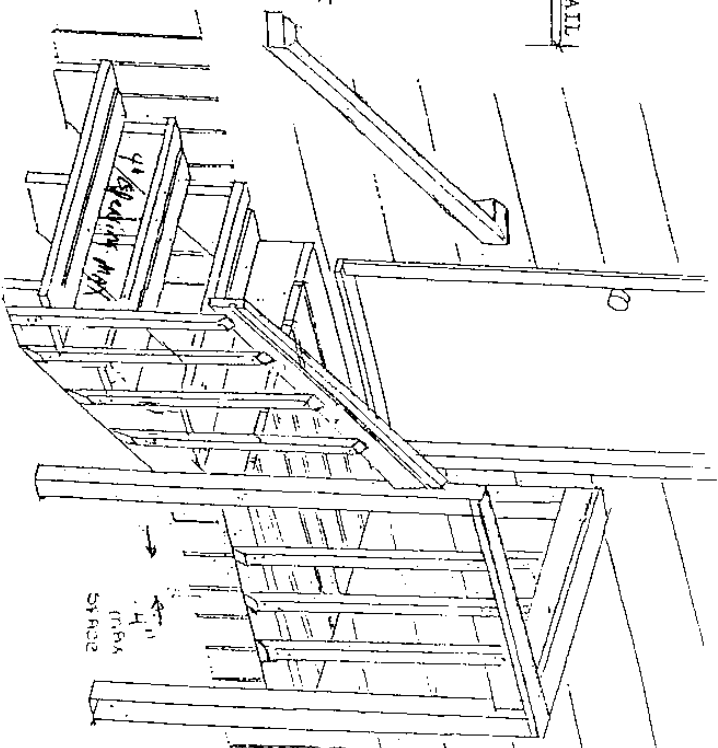
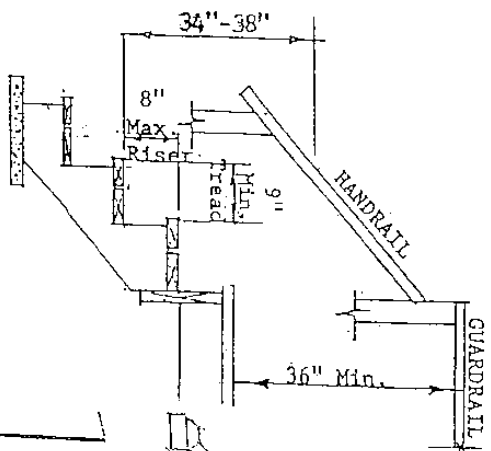
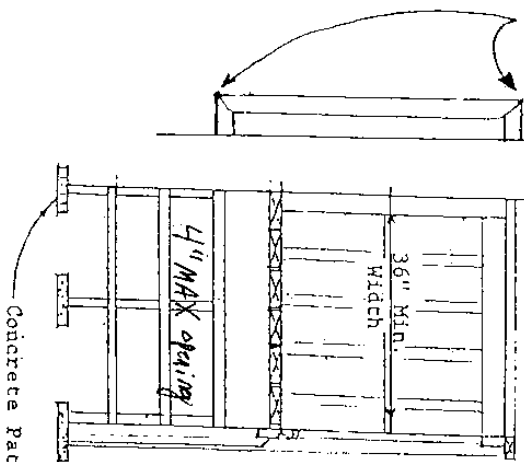
EXISTING HOUSE



Unless specifically engineered, decks cannot be attached to cantilever floors.

STEP AND LANDING REQUIREMENTS

HANDRAIL MUST RETURN TO WALL OR POST !



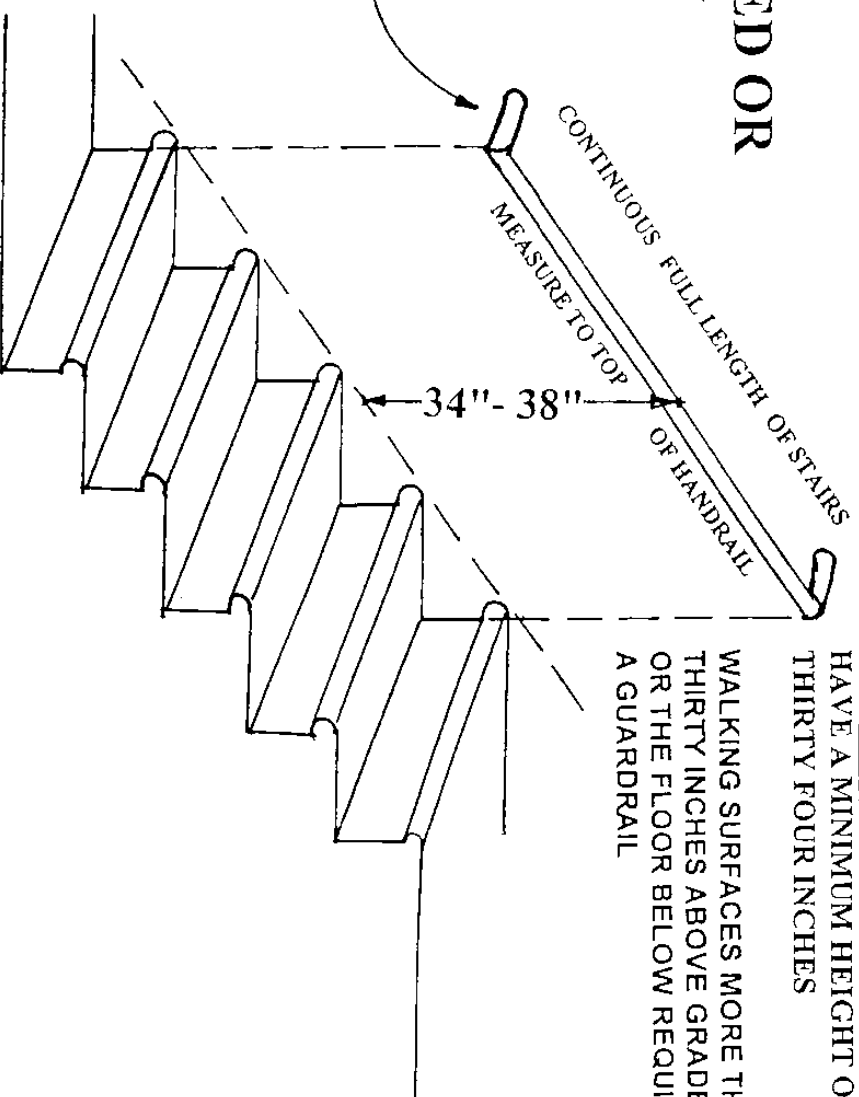
GENERAL BUILDING CODE REQUIREMENTS

1. Stairways shall be supported on concrete or pressure treated lumber footings
2. Pressure treated lumber or equivalent shall be used.
3. Stairways shall have a minimum width of thirty-six (36) inches. The stairways shall have an eight (8) inch maximum rise and nine (9) inch minimum run.
4. A stairway with four (4) or more risers shall have a handrail thirty-four (34) inches to thirty-eight (38) inches above the nose of the tread.
5. When a stairway is open on both sides and more than thirty (30) inches above grade, a guardrail shall be required on each open side.
6. The handgrip portion of a handrail shall have a smooth surface and shall be continuous the full length of the stairway. The handgrip on handrails shall not be less than 1 1/4" or more than 2 5/8" and must be continuous and returned to the wall or post.
7. Open guardrail, stair railings and risers shall have vertical or diagonal rails such that a sphere our (4) inches in diameter cannot pass through. Decks which are more than thirty (30) inches above grade shall be protected by a guardrail not less than thirty-six (36) inches in height.
8. A minimum 36" x 36" landing size is required at top and bottom of stairs.

STAIR HANDRAILS

HANDRAIL REQUIRED ON ONE SIDE ONLY.
HANDRAIL NOT REQUIRED ON STAIRWAYS HAVING
LESS THAN FOUR RISERS.

ENDS RETURNED OR
TERMINATE IN
A NEWELL
POST OR
SAFETY
TERMINAL.



THE TOP OF GUARDRAILS
FOR STAIRWAYS ONLY MAY
HAVE A MINIMUM HEIGHT OF
THIRTY FOUR INCHES
WALKING SURFACES MORE THAN
THIRTY INCHES ABOVE GRADE
OR THE FLOOR BELOW REQUIRE
A GUARDRAIL