



Deck

Requirements for Building Permit Application

1. Completed Building Permit application form with signature
2. Submit two (2) copies of a Certificate of Survey, drawn to scale indicating the lot dimensions, the location and ground coverage area of existing structure(s), and the location and area of the proposed structure. Indicate the setbacks from property lines. A Certificate of Survey for the property may be on file at City Hall.
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. 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;
 - b. 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 24 inches on center requires two (2) inch minimum decking and floor joist spacing at 16 inches on center requires one (1) inch minimum decking.
2. Decks shall be capable of supporting a load of 50 pounds per square foot.
3. Frost footings are required for any deck attached to any structure that has frost footings. The minimum depth to the base of the footing is 42 inches.
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 included posts, beams, joist, decking and railings.
11. Stairs minimum is 36 inches. Maximum rise is eight (8) inches; minimum rise is four (4) inches. Minimum run is nine (9) inches. Largest width or riser height shall not exceed the smallest by more than **3/8 inch**. Stairways with four (4) risers or more require a handrail. Open risers are permitted, provided that the opening between treads does not permit the passage of a four (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 1¹/₄ inches or more than 2⁵/₈ inches and shall provide a grippable surface.

Note: The aforementioned criterion represent general code requirements relative to decks. For specific code and zoning requirements, please contact the Building Official at (763) 479-1720 or toll free 1-800-223-1720 or the Planning Department at (952) 492-2535.

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. Cards should be protected from the weather.
4. Post Address on construction site visible from 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 1-800-657-3602.*

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

For inspections call the Building Official at **(763) 479-1720** or toll free **1-800-223-1720** between 7:00 a.m. and 4:30 p.m. Monday through Friday.

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 _____

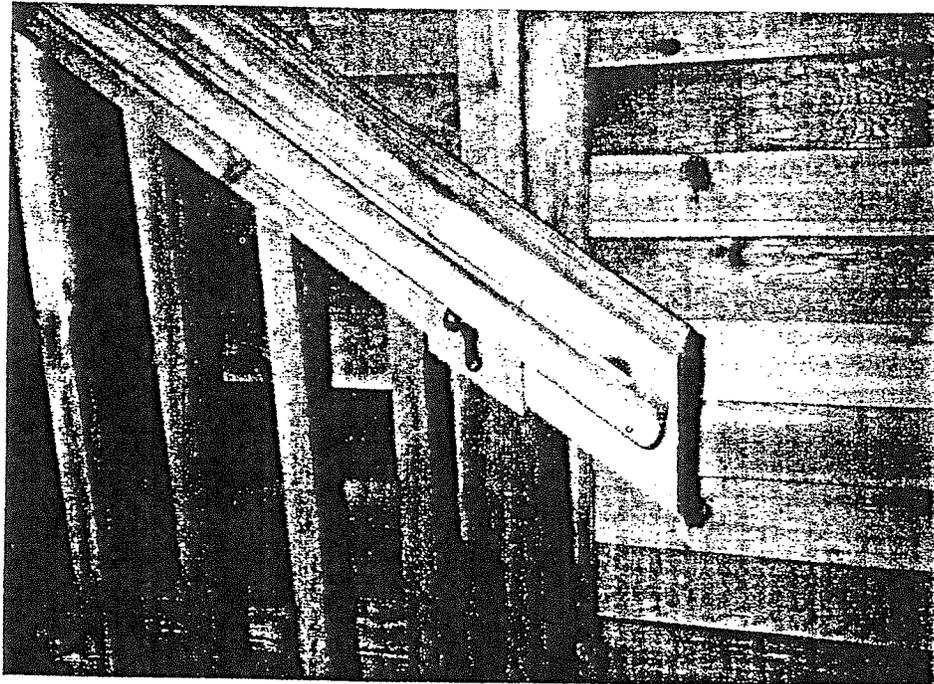
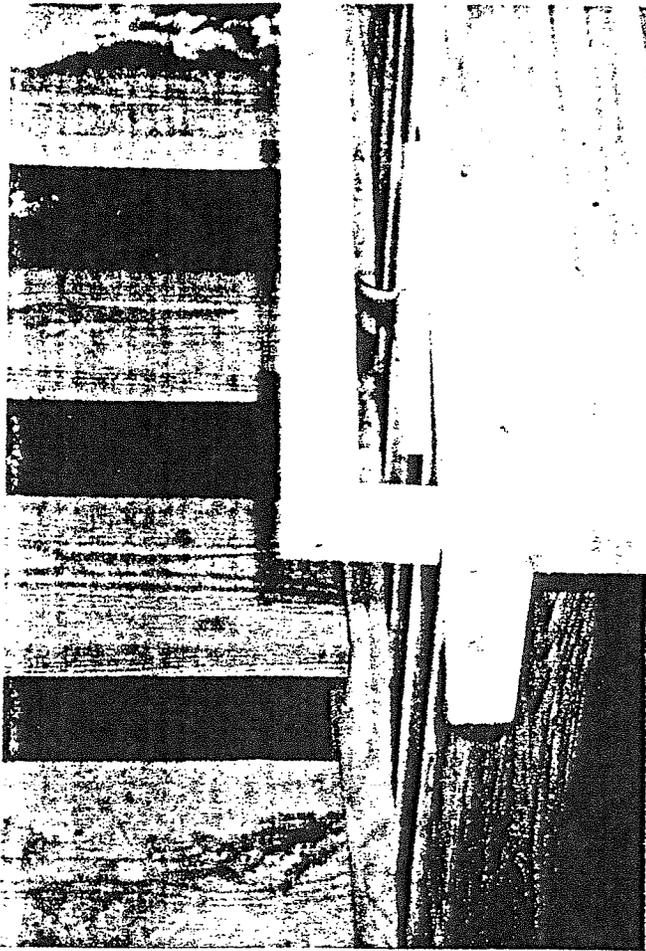
J Distance to property lines _____

 Side 1 _____

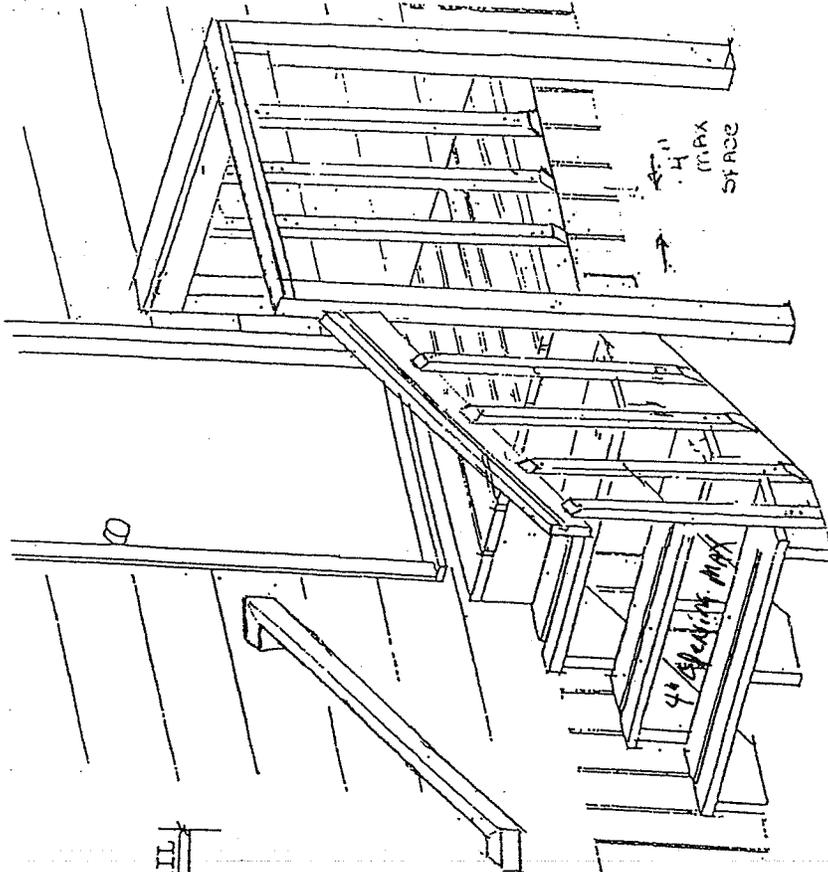
 Side 2 _____

 Rear _____

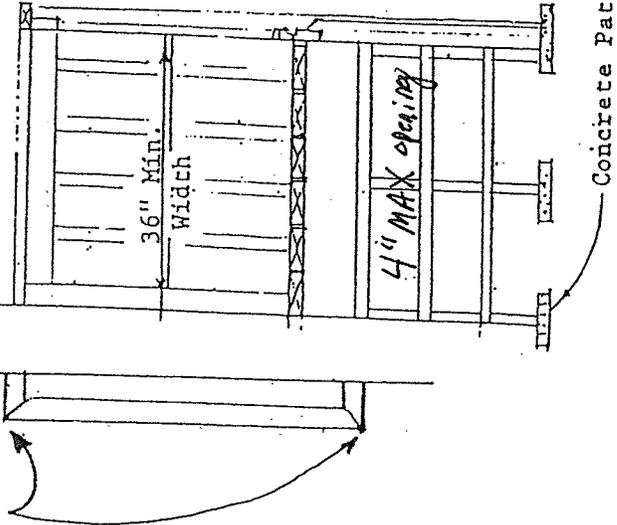
 Other _____



STEP AND LANDING REQUIREMENTS



HANDRAIL MUST RETURN TO WALL OR POST!



GENERAL BUILDING CODE REQUIREMENTS

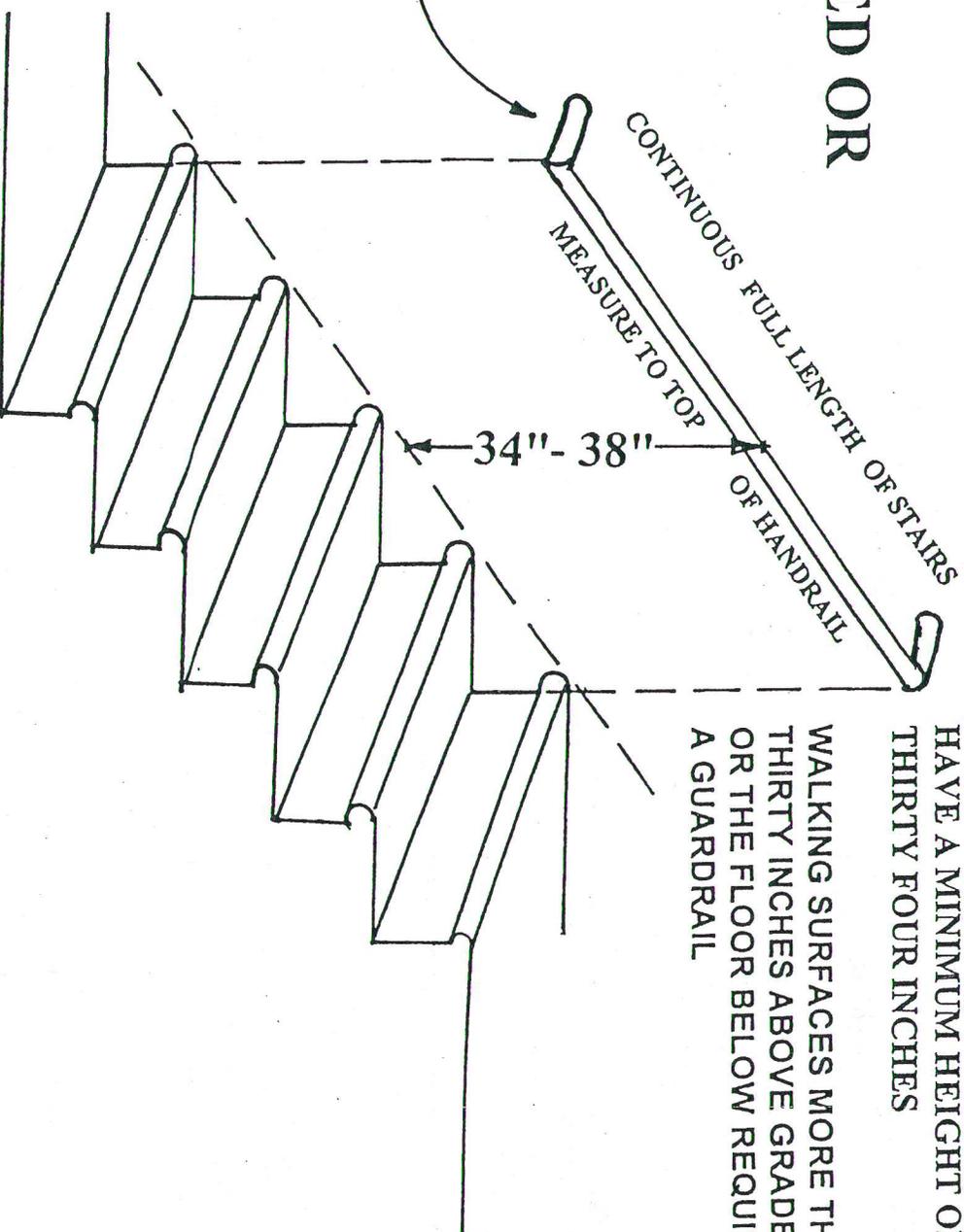
1. Stairways shall be supported on concrete or pressure treated lumber footings
2. Pressure treated lumber or equivalent shall be used.
3. Stairways shall have a minimum width of thirty-six (36) inches. The stairways shall have an eight (8) inch maximum rise and nine (9) inch minimum run.
4. A stairway 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 that 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.

Concrete Patio Block or Equal

STAIR HANDRAILS

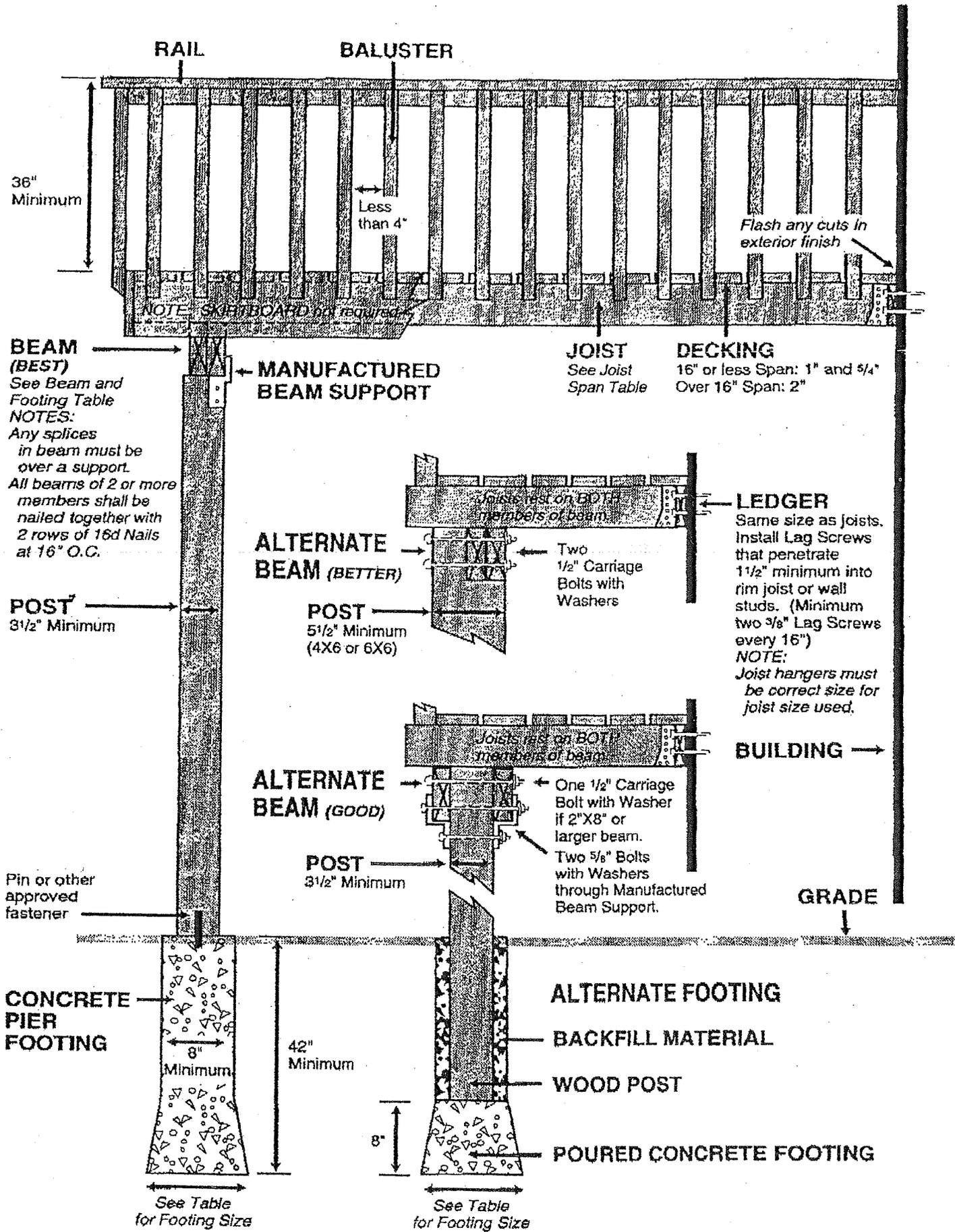
HANDRAIL REQUIRED ON ONE SIDE ONLY.
HANDRAIL NOT REQUIRED ON STAIRWAYS HAVING
LESS THAN FOUR RISERS.

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



36" Minimum

Less than 4"

Flash any cuts in exterior finish

NOTE: SKIRTBOARD not required

BEAM (BEST)
See Beam and Footing Table
NOTES:
Any splices in beam must be over a support.
All beams of 2 or more members shall be nailed together with 2 rows of 16d Nails at 16" O.C.

MANUFACTURED BEAM SUPPORT

JOIST
See Joist Span Table

DECKING
16" or less Span: 1" and 5/4"
Over 16" Span: 2"

POST
3 1/2" Minimum

ALTERNATE BEAM (BETTER)

POST
5 1/2" Minimum (4X6 or 6X6)

Two 1/2" Carriage Bolts with Washers

LEDGER
Same size as Joists. Install Lag Screws that penetrate 1 1/2" minimum into rim joist or wall studs. (Minimum two 3/8" Lag Screws every 16")
NOTE: Joist hangers must be correct size for joist size used.

ALTERNATE BEAM (GOOD)

POST
3 1/2" Minimum

One 1/2" Carriage Bolt with Washer if 2"X8" or larger beam.
Two 5/8" Bolts with Washers through Manufactured Beam Support.

BUILDING →

GRADE ↓

Pin or other approved fastener

CONCRETE PIER FOOTING

8" Minimum

42" Minimum

ALTERNATE FOOTING

BACKFILL MATERIAL

WOOD POST

POURED CONCRETE FOOTING

8"

See Table for Footing Size

See Table for Footing Size

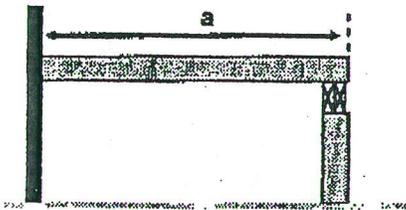
Joist Span

Based on No. 2 or better wood grades.
(Design Load = 40#LL + 10#DL, Deflection = L/360)

	Ponderosa Pine			Southern Pine			Western Cedar		
	12"OC	16"OC	24"OC	12"OC	16"OC	24"OC	12"OC	16"OC	24"OC
2x6	9-2	8-4	7-0	10-9	9-9	8-6	9-2	8-4	7-3
2x8	12-1	10-10	8-10	14-2	12-10	11-0	12-1	11-0	9-2
2x10	15-4	13-3	10-10	18-0	16-1	13-5	15-5	13-9	11-3
2x12	17-9	15-5	12-7	21-9	19-0	15-4	18-5	16-0	13-0

Sample Calculations for Using Joist Span, Beam Size and Footing Size Tables

CASE I SOLUTION:



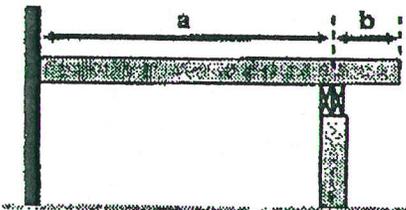
Refer to tables for joist, beam and footing size requirements.

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

Use the **Joist Span** table to find the acceptable joist sizes for a 12' span, 2x8s at 12" O.C., 2x10s at 16" O.C. or 2x12s at 24" O.C.

Use the **Beam and Footing Sizes** table and find the 8' post spacing column. With a 12' deck span, the beam may be either two 2x8s or two 2x10s, depending on wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 12", 10" or 9" for the corner post and 17", 14" or 12" for all intermediate posts.

CASE II SOLUTION:



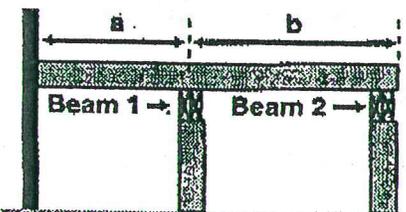
Use "a" to determine joist size and "a" + "2b" to determine beam and footing sizes. The length of "b" is restricted by both the length of "a" and the size of the joists.

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

Refer to the **Joist Span** table. For an 8' joist span, either 2x8s at 24" O.C. or 2x6s at 16" O.C. are acceptable.

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 2x10s or two 2x12s, depending on wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 15", 12" or 11" for the corner post and 20", 17" or 15" for all intermediate posts. Note that because of the 2' cantilever all footing sizes were increased by 1" as required by footnote 2 at the end of the table.

CASE III SOLUTION:



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 posts 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.

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

Joist size is determined by using the longest span joist (7'). The **Joist Span** table indicates that 2x6s 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 2x10s or two 2x12s, depending on the wood used. Depending on the type of soil, the footing diameters for Beam 1 posts shall be 13", 11" or 9" for the corner (outside) post and 19", 15" or 13" 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 2x8s or two 2x10s, depending on wood used. Depending on the type of soil, the footing diameters for Beam 2 shall be 10", 8" or 7" for the corner posts, and 14", 11" or 10" for all intermediate posts.

Beam and Footing Sizes

Based on No. 2 or better Ponderosa Pine and Southern Pine
(Treated for weather and/or ground exposure)

		Post Spacing																
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'						
Joist Length	6'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10							
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
	Corner Footing	6 5 4	7 6 5	7 6 5	8 7 6	9 7 6	9 7 6	9 7 6	10 8 7	10 8 7	10 8 7	10 9 7	11 9 8	11 9 8	11 9 8	11 9 8	11 9 8	
	Intermediate Footing	9 8 7	10 8 7	10 9 7	11 9 8	12 10 9	13 10 9	13 10 9	14 11 10	14 12 10	15 12 10	15 12 10	15 13 11	15 13 11	15 13 11	15 13 11	16 13 11	
	7'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
	Corner Footing	7 5 5	7 6 5	8 7 6	9 7 6	9 8 7	10 8 7	10 8 7	10 8 7	11 9 8	11 9 8	11 9 8	12 10 9	12 10 9	12 10 9	12 10 9	12 10 9	
	Intermediate Footing	9 8 7	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	14 11 10	15 12 10	15 12 10	15 12 10	15 13 11	16 13 11	16 13 11	17 14 12	17 14 12	17 14 12	
	8'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
		Ponderosa Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
	Corner Footing	7 6 5	8 6 6	9 7 6	9 8 7	10 8 7	10 8 7	10 8 7	11 9 8	11 9 8	12 10 9	12 10 9	12 10 9	13 10 9	13 10 9	13 10 9	13 11 9	
	Intermediate Footing	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	14 11 10	15 12 10	15 12 10	16 13 11	16 13 11	16 13 11	17 14 12	17 14 12	18 15 13	18 15 13	18 15 13	
	9'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
		Ponderosa Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
	Corner Footing	7 6 5	8 7 6	9 7 6	10 8 7	10 9 7	11 9 8	12 10 8	12 10 8	12 10 8	12 10 9	13 10 9	13 10 9	13 10 9	13 11 9	14 11 10	14 11 10	
	Intermediate Footing	10 9 7	12 10 8	13 10 9	14 11 10	15 12 10	15 12 10	16 13 11	16 13 11	17 14 12	17 14 12	17 14 12	18 15 13	18 15 13	19 15 13	19 15 13	20 16 14	
	10'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
		Ponderosa Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10						
Corner Footing	8 6 6	9 7 6	10 8 7	10 8 7	11 9 8	12 10 8	12 10 8	12 10 8	12 10 8	12 10 9	13 11 9	14 11 10	14 11 10	14 12 10	15 12 10	15 12 10		
Intermediate Footing	11 9 8	12 10 9	14 11 10	15 12 10	16 13 11	17 14 12	17 14 12	17 14 12	18 15 13	18 15 13	18 15 13	19 16 14	19 16 14	20 16 14	20 16 14	21 17 15		
11'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
Corner Footing	8 7 6	9 7 6	10 8 7	11 9 8	12 9 8	12 10 9	13 11 9	13 11 9	14 11 10	14 11 10	14 11 10	14 12 10	15 12 10	15 12 10	15 13 11	15 13 11		
Intermediate Footing	12 9 8	13 11 9	14 12 10	15 12 10	16 13 11	17 14 12	17 14 12	17 14 12	18 15 13	18 15 13	18 15 13	19 16 14	19 16 14	20 16 14	20 16 14	21 17 15		
12'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
Corner Footing	9 7 6	10 8 7	10 9 7	11 9 8	12 10 9	13 10 9	14 11 10	14 11 10	14 12 10	15 12 10	15 12 10	15 12 10	15 13 11	16 13 11	16 13 11	16 13 11		
Intermediate Footing	12 10 9	14 11 10	15 12 10	16 13 11	17 14 12	18 15 13	19 16 14	19 16 14	20 16 14	20 16 14	21 17 15	21 17 15	22 18 15	22 18 15	23 18 16	23 18 16		
13'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
Corner Footing	9 7 6	10 8 7	11 9 8	12 10 8	13 10 9	13 11 9	14 12 10	15 12 10	15 12 10	15 12 10	15 13 11	16 13 11	16 13 11	16 13 11	17 14 12	17 14 12		
Intermediate Footing	13 10 9	14 12 10	15 13 11	17 14 12	18 15 13	19 15 13	20 16 14	20 16 14	21 17 15	21 17 15	22 18 15	22 18 15	23 19 16	23 19 16	24 19 17	24 19 17		
14'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
Corner Footing	9 8 7	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	15 13 11	16 13 11	16 13 11	16 13 11	17 14 12	17 14 12	17 14 12	17 14 12	17 14 12		
Intermediate Footing	13 11 9	15 12 10	16 13 11	17 14 12	18 15 13	20 16 14	21 17 15	22 18 15	23 18 16	23 18 16	24 19 17	24 19 17	24 19 17	24 20 17	24 20 17	24 20 17		
15'	Southern Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
Corner Footing	10 8 7	11 9 8	12 10 8	13 10 9	14 11 10	14 12 10	15 12 11	16 13 11	17 14 12	17 14 12	17 14 12	17 14 12	17 14 12	18 15 13	18 15 13	18 15 13		
Intermediate Footing	14 11 10	15 12 11	17 14 12	18 15 13	19 16 14	20 17 14	21 17 15	22 18 16	23 19 17	23 19 17	24 20 17	24 20 17	24 20 17	25 21 18	25 21 18	25 21 18		
16'	Southern Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10								
Corner Footing	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	16 13 11	17 14 12	17 14 12	17 14 12	17 14 12	18 15 13	18 15 13	18 15 13	18 15 13	18 15 13		
Intermediate Footing	14 11 10	16 13 11	17 14 12	18 15 13	20 16 14	21 17 15	22 18 16	23 19 16	24 20 17	24 20 17	25 21 18	25 21 18	25 21 18	26 21 18	26 21 18	26 21 18		

Notes:

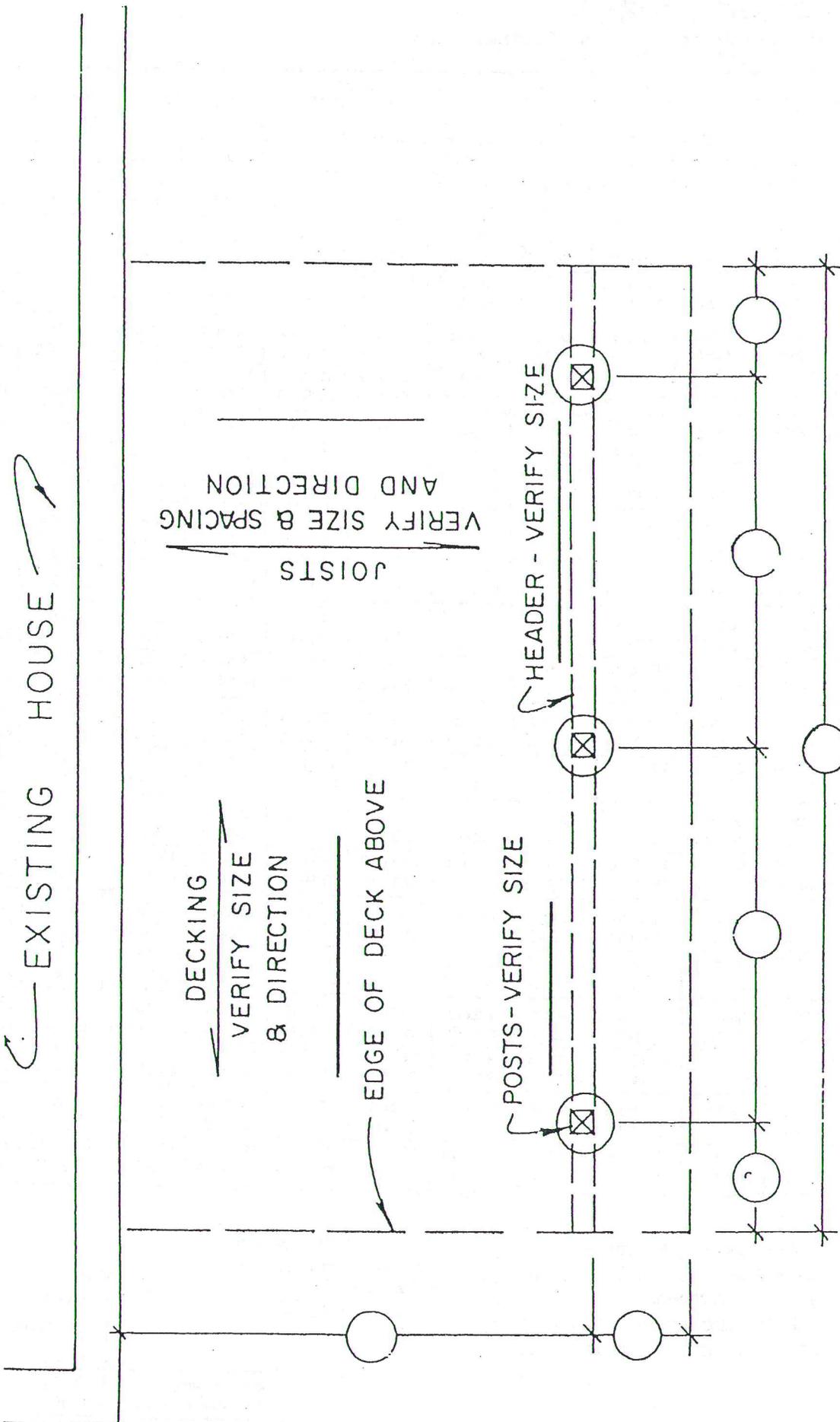
1. Joist length is total length of joist, including any cantilevers.
2. When joist extends (cantilevers) beyond support beam by 18" or more, add 1" to footing dimensions shown.
3. Footing size must be increased if the deck will be used for a porch in the future.

4. All footing sizes above are base diameters (in inches) and are listed for THREE SOIL TYPES:

CLAY
SAND
GRAVEL

Corner Footing	10 8 7
Intermediate Footing	14 11 10

EXISTING HOUSE



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