



## **BUILDING DEPARTMENT**

Moore Engineering, inc.

925 10<sup>TH</sup> AVENUE EAST

WEST FARGO, ND 58078

PHONE: 701-281-0597 FAX: 701-433-0376

### **GUIDELINE FOR BUILDING RESIDENTIAL DECKS**

This handout is a **guide** only and does cover all of the West Fargo Building Code requirements.

**Building Permits** are required for all decks regardless of size or if the deck is attached or unattached to a dwelling.

**Building Permit Fees** are based on the valuation of the construction project; this includes the materials and labor. If you will be doing the work yourself an estimate of labor cost shall be determined and included with the cost of materials.

Plan submittals shall be drawn to scale, neat and legible on suitable material (min.11x17). The plan submittal shall be of sufficient clarity to indicate the location and extent of the work proposed.

Information required to be submitted along with your application for a building permit:

**SITE PLAN** – Drawing to scale shown lot dimensions, deck location and distances from property lines.

**PLAN VIEW** – Proposed deck size and location of stairs.

- Size, type and spacing of floor joists.

- Size and type of decking. (Plastic/composite decking must be approved before installing.)

**ELEVATIONS** – Size, type, location and spacing of posts, beams and headers.

- Height of structure from grade.

- Diameter and depth of footings.

- Joist hangers, flashing and fasteners.

- Guard height (if any) and spacing intermediate rails.

- Stair and handrail details.

### **DECK CONSTRUCTION GUIDELINES**

1. **Setbacks** – Decks may extend 10 feet into the required front and rear yards and 3 feet into the required side yards. In no case shall a deck be constructed over any easement. Included with this guideline is Zoning Information regarding required yards. It is the permit holder's responsibility to locate and verify all property lines.
2. **Live Loads** – All deck floor systems must be designed to support a live load of 40 pounds per square foot.
3. **Footings** – Frost protected footings are not required but are recommended. Frost depth for the City of West Fargo is 54 inches. Consideration should be made if the deck is intended to be enclosed in the future, if so then a frost protected footings will be required and may need to be designed by a Registered Professional Structural Engineer.
4. **Wood Required** – All exposed wood used in the construction of decks are required of natural resistance to decay (heartwood of redwood, cedar or black locust) or approved treated wood. This includes posts, beams, joists, decking, guards, stairs and rails. All lumber must bear the quality mark of an approved inspection agency. Plastic/composite decking must be installed and supports spaced on center per manufactures specifications. A copy of these specs report must be made available for the installer and inspector.

5. **Flashing** – All connections between deck and dwelling must be flashed and weatherproof.
6. **Ledger Board** – Siding must be removed to allow this member to be properly fastened. Where supported by attachment to an exterior wall, decks shall be anchored to the structure and designed for both vertical and lateral loads. Toenails or nails are not to be used for this purpose because they are subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, deck must be self supporting. Fasteners must be long enough to penetrate framing members. Decks shall not be supported by cantilevered floor framing without specific engineering.
7. **Joist/beams** – Attached are design guideline to assist in determining the minimum size and spacing for floor joists and supporting beams. Joist with cantilevers which exceed 3 times the nominal depth of the joist will required structural engineering. Beams cannot overhang posts by more than 12 inches unless designed by a structural engineer. Built-up beams (two or more members) are to be nailed, screwed or bolted together.
8. **Joist Hangers** – floor joists are to be supported by approved framing anchors and joist hangers.
9. **Fasteners** – All fasteners shall be non-corrosive. Joist hangers and other framing anchors are to be installed according to product manufacturer's instructions and their recommended fasteners.
10. **Guards** – All open side of decks which are more than 30 inches above the grade or floor below, must be protected by a guard rail not less 36 inches in height. Open side of stairs with a total rise of more than 30 inches above the grade or floor below shall have guards not less than 34 inches in height measured vertical from the nose of the tread. Required guards shall have intermediate rails or ornamental closures that do not allow passage of a sphere 4 inches in diameter. The triangular openings formed by the riser and the bottom rail of a guard at the open side of a stairway may be of such size that a sphere of 6 inches in diameter cannot pass through.
11. **Stairs** – Stairways shall be a minimum of 36 inches in width. The maximum riser height shall be 8" inches (3/8 inch maximum variation in riser height) and the minimum tread depth shall be 9" inches (3/8 inch maximum variation in tread depths). Open risers are permitted, provided that the opening between treads does not permit the passage of a 4 inch diameter sphere. For minimum width stairs, a minimum of three stringers is required. If 5/8 inch decking material is used for treads, stringers shall be spaced a maximum of 16 inches on center.
12. **Handrails** – A handrail shall be provided on at least one side of all stairways having 4 or more risers. Handrails shall be placed not less than 34 inches or more than 38 inches above the nosing of the treads and be continuous the full length of the stairs. Handrails projecting from a wall or guardrail must have space of not less than 1 1/2 inches between the wall or guardrail and the handrail. The handgrip portion of handrails shall have a cross section of 1 1/4 inches minimum to 2 5/8 inches maximum in cross-sectional dimension and must have a smooth surface with no sharp corners.

## REQUIRED INSPECTIONS

1. **Framing/Final** – In most instances the framing can be inspected at the final inspection. If your deck is less than 3 feet above the ground, a separate framing inspection will be required before the decking is installed.

It shall be the responsibility of the permit holder to notify the Building Department when work is ready for an inspection.

The following sheets are only provided as reference to assist you in drafting your plans for your deck.



# Residential Building Permit Application

**BUILDING INSPECTIONS**  
 925 10<sup>TH</sup> AVENUE EAST  
 WEST FARGO, ND 58078  
 PHONE: 701-281-0597  
 FAX: 701-433-0376

Incomplete applications will cause delays in the routing/review and permitting process.

Project Title*:		Office use only:	
Address:			
Project Value:			
Project Description:			
Owner:		Contact Person:	
Address:		Phone:	Fax:
		E-mail:	
Designer:		Contact Person:	
Address:		Phone:	Fax:
		E-mail:	
General Contractor:		Contact Person:	
Address:		Phone:	Fax:
ND Contractor License No.		E-mail:	
Foundation Contractor:		Mechanical Contractor:	
Phone:		Phone:	
E-Mail:		E-Mail:	
ND Contractor License No.		ND Contractor License No.	
Excavator:		Yard Grading Contractor:	
Phone:		Phone:	
Plumbing Contractor:		Electrical Contractor:	
Phone:		Phone:	

Complete back side.

**TYPE OF IMPROVEMENT:**

New Construction  Addition  Remodel  Demolition  Move  Repair  Miscellaneous  Temporary

**PERMIT FOR:**

Single Family Dwelling  Two Family Dwelling (Separate Permit for each Unit)  Townhouse (        Units)  
 Accessory Building  Deck  Residing  Lower Level Finish  
 Other (Please Explain:)

**BUILDING/STRUCTURE SIZE:**

Width        Ft.    Depth        Ft.    Height        Ft.    No. of Stories        Basement Finished  Yes  No  
Basement Floor Area        SF        Number of Bedrooms  
Main Floor Area        SF        Number of Bedrooms  
Second Floor Area        SF        Number of Bedrooms  
Third Floor Area        SF        Number of Bedrooms  
Garage Floor Area        SF

**BUILDING LOCATION ON SITE:**

Property Zoning Designation        Property Area        SF  
North Property Setback Distance        Ft.  Front  Side  Rear  Adjacent to Public Way  
East Property Setback Distance        Ft.  Front  Side  Rear  Adjacent to Public Way  
South Property Setback Distance        Ft.  Front  Side  Rear  Adjacent to Public Way  
West Property Setback Distance        Ft.  Front  Side  Rear  Adjacent to Public Way

**REQUIREMENTS FOR CONSTRUCTION IN FLOODPLAIN:**

Is the Building Located in the Special Floodplain Hazard area?  Yes  No (If yes complete the following)  
Base Flood Elevation        Ft. Flood Protection Elevation        Ft. Letter of Map Revision Issued  Yes  No  
Acknowledgement Form Submitted  Yes  No

**For Office Use Only**

**Septic Permit Required:**

Yes  No

**Planning and Zoning Approval:**

P.U.D.  Yes  No    Conditional Use  Yes  No    Overlay District  Yes  No  
Date Approved

*I hereby acknowledge that this application is not a Building Permit, nor does it authorize the start of construction.*

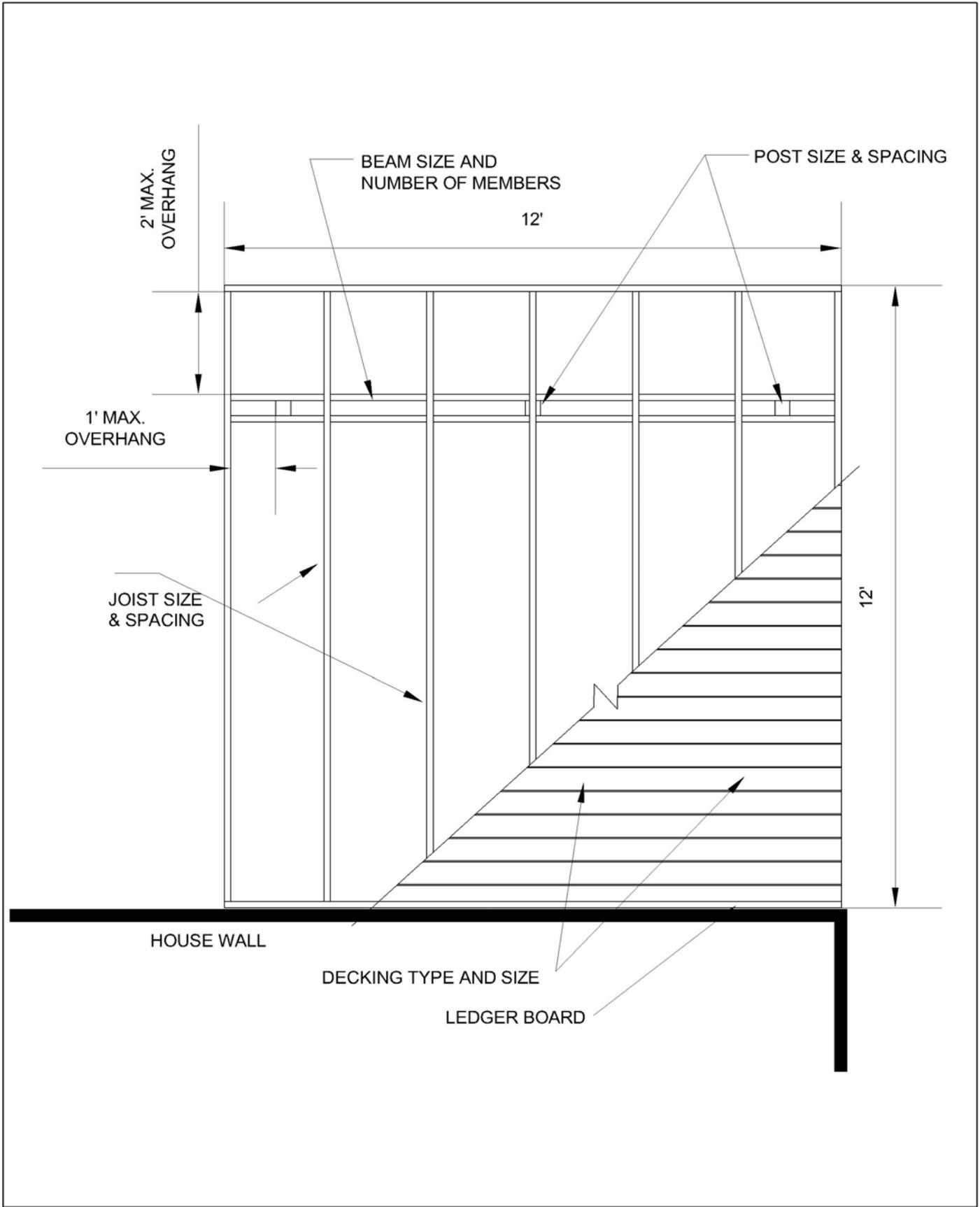
\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

RESIDENTIAL	YARD REQUIREMENTS							
	MINIMUM LOT SIZES			MINIMUM SETBACKS (FT.)			MAX. LOT COVERAGE	MAXIMUM HEIGHT
	AREA	WIDTH	DEPTH	FRONT YARD	REAR	SIDE YARD		
<b>A - AGRICULTURAL</b>								
FARM USE	None	300	300	(3)	50	20 (4)	NA	None
NON FARM USE (1)	(2)	300	300	(3)	50	20 (4)	NA	35
<b>RR – RURAL RESIDENTIAL</b>								
ONE FAMILY	2.5 acres	150	200	40 (6)	30	20 (7)	15	35 (16)
<b>R-1E – RURAL ESTATES</b>								
ONE FAMILY	43560 (8)	120	200	30 (6)	30	10 (7)	15	35
<b>R-L1A – LARGE LOT SINGLE FAMILY</b>								
ONE FAMILY	10000	75	120	25	30	6 (9)	30	30
<b>R-1A – SINGLE FAMILY DWELLING</b>								
ONE FAMILY	6000	60	100	25	30	6 (9)	30	30
<b>R-1 – ONE &amp; TWO FAMILY DWELLINGS</b>								
ONE FAMILY	5000	50	100	25	30	5 (9)	30	30
TWO FAMILY	7000	70	100	25	30	7 (9)	30	30
TOWN HOMES	3500	35	100	25	30	7 (9)	30	30
<b>R-1B SPECIAL SINGLE FAMILY</b>								
ONE FAMILY	6000	60	100	20	25	5 (9)	35	30
<b>R-1S – SPECIAL ONE &amp; TWO FAMILY DWELLINGS</b>								
ONE FAMILY	4000	40	100	15	20	5 (9)	45	30
TWO FAMILY	6000	60	100	15	20	6 (9)	45	30
TOWN HOMES	3000	30	100	15	20	6 (9)	45	30
<b>R-1SM – MIXED ONE &amp; TWO FAMILY DWELLINGS</b>								
ONE FAMILY	3600	36	100	20	20	4 (9)	45	35
TWO FAMILY	6000	60	100	20	20	5 (9)	45	35
TOWN HOMES	3000	30	100	20	20	5 (9)	45	35
<b>R-2 – LIMITED MULTIPLE DWELLING</b>								
ONE FAMILY	5000	50	100	25	30	5 (9)	30	30
TWO FAMILY (LOTS)	6000 (11)	50 (13)	100	25	30	6 (9)	40	30
TWO FAMILY (LOTS)	6000 (11)	60 (14)	100	25	30	6 (9)	35	30
TOWN HOMES	3000	24	100	25	30	8 end unit (9) 0	40	35 (16)
MULTIPLE DWELLINGS	(12)			25	30	(9) (10)	40	35 (16)
<b>R-3 – MULTIPLE DWELLINGS</b>								
ONE FAMILY	5000	50	100	25	25	5 (9)	30	30
TWO FAMILY (LOTS)	6000 (11)	50 (13)	100	25	25	6 (9)	40	30
TWO FAMILY (LOTS)	6000 (11)	60 (14)	100	25	25	6 (9)	35	30
TOWN HOMES	3000	24	100	25	25	8 end unit (9) 0	40	35 (16)
MULTIPLE DWELLINGS	(12)			25	25	(9) (10)	40	35 (16)
<b>R-4 MOBILE HOME</b>								
SEE TITLE XVI OF THE CITY OF WEST FARGO ORDINANCES								
<b>R-5 MOBILE HOME/MANUFACTURED HOME SUBDIVISION</b>								
ONE FAMILY	6000	60	130	25	10	7.5 (9)	30	30

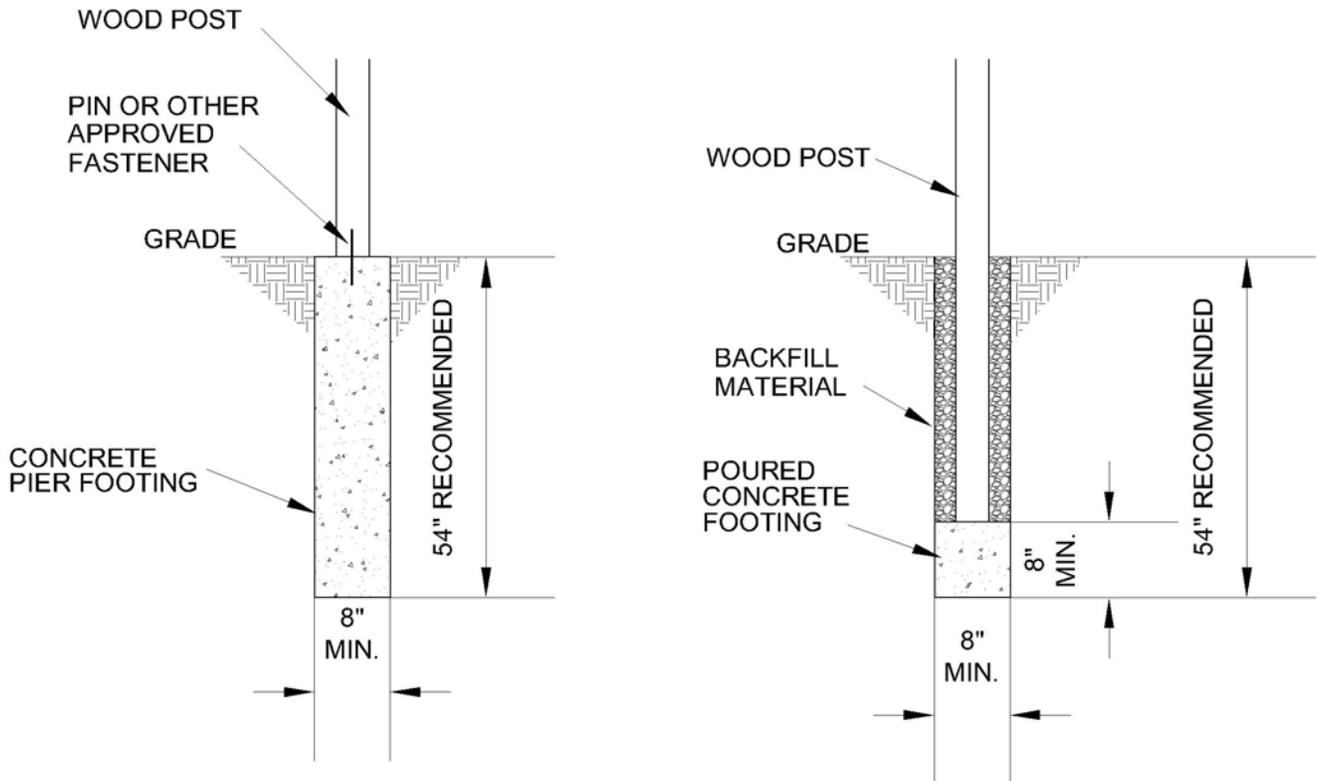
ZONING DISTRICTS

- (1) Single family non-farm dwellings are conditionally permitted.
- (2) Single family dwellings on lots of record – 1 acre; Single family dwellings on newly created lots – 40 acres.
- (3) From local road: 120' from centerline or 40' from the established right of way, whichever is greater; from collector or arterial road: 150' from centerline or 75' from established right of way, whichever is greater.
- (4) Side yard setbacks for street side of corner lots shall be the same as required for front yards.
- (5) Subdivisions within areas designated as Agricultural Preservation according to the Land Use Plan shall have a minimum lot size of 10 acres. Clustered rural subdivisions may have reduced lot sizes as provided for in the City Ordinance.
- (6) Front yard setbacks from existing or future streets shall be 40' from the road (street) right of way line, or the following, whichever is greater: 75' from the centerline of the street for local streets, 90' for collector or minor arterial streets and 115' for primary arterial streets.
- (7) On corner lots, a side yard facing a public way shall be a minimum of 30'.
- (8) Clustered rural subdivisions may have reduced lot sizes as provided for in the City Ordinance.
- (9) On corner lots, a side yard facing a public way shall be a minimum of 12 feet, except when a driveway to a garage is located in said side yard, in which case, the side yard shall be a minimum of 20 feet, except for lots of 50 feet or less, in which case, the minimum setback shall be 18 feet. In this case, the house may be 12 feet, but the garage must be a minimum of 20 feet on lots greater in width than 50 feet, or 18 feet on lots 50 feet or less in width.
- (10) 12% of the lot width, with a maximum of 12 feet.
- (11) A duplex which consists of 2 units on one lot is required to have a minimum lot area of 6000 square feet. A twin home which consists of 2 units side by side with a common party wall is required to have a minimum lot area of 3000 square feet for each unit.
- (12) 1800 square feet for each dwelling unit plus 200 square feet for each bedroom, with a minimum permitted lot area of 8000 square feet. Efficiency units shall be considered one-bedroom units for the purpose of lot computation.
- (13) A duplex is required to have a minimum lot width of 50 feet, whereas a twin home is required to have a minimum lot width of 25 feet for each unit.
- (14) A duplex is required to have a minimum lot width of 60 feet, whereas a twin home is required to have a minimum lot width of 30 feet for each unit.
- (15) For main building and all accessory buildings.
- (16) For every building over 35 feet in height, required yards shall be increased by one (1) foot for every two (2) feet of building height over the limit.

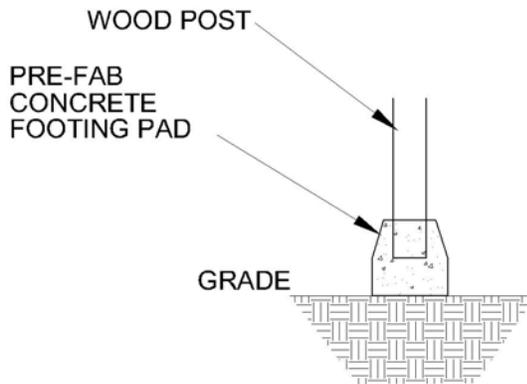


TYPICAL DECK FLOOR PLAN

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FROST PROTECTED

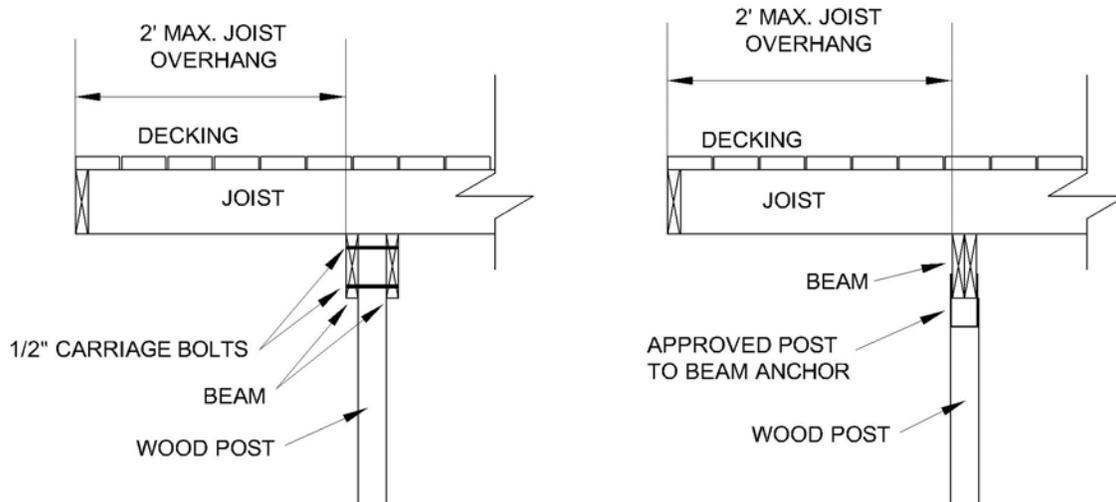


NON-FROST PROTECTED

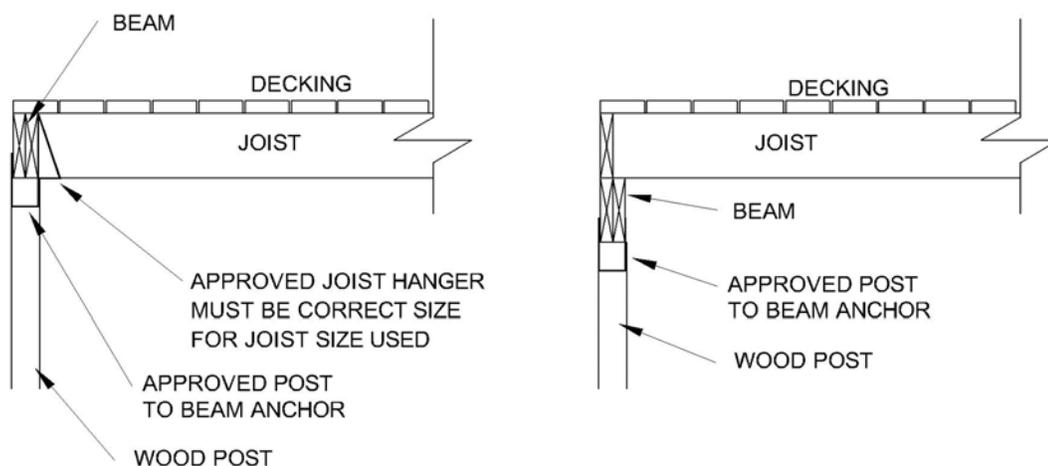


TYPICAL DECK FOUNDATION PLAN

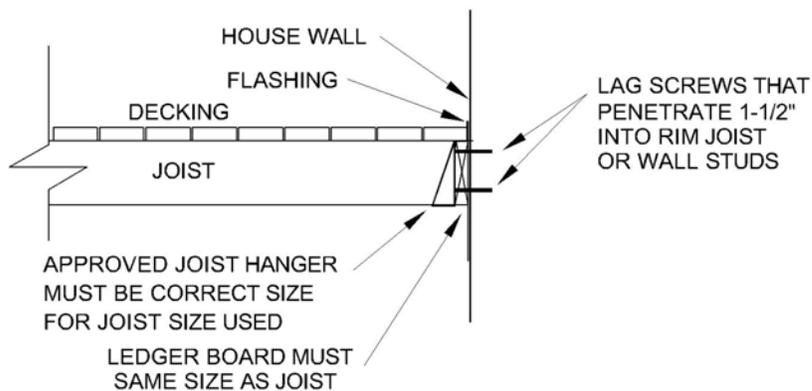
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**TYPICAL CANTILEVERED SUPPORT**



**TYPICAL END SUPPORT**

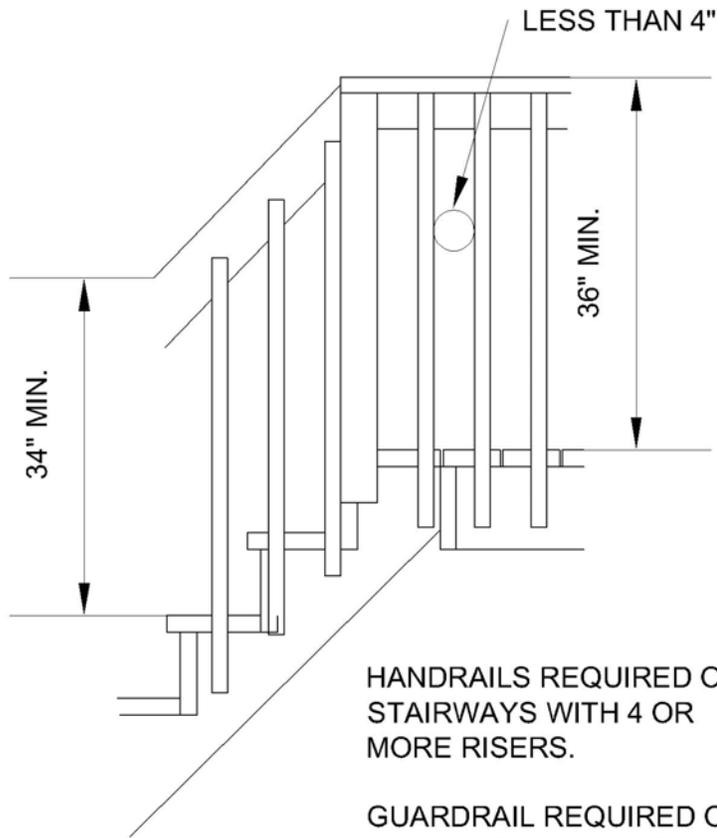


**TYPICAL HOUSE SUPPORT**



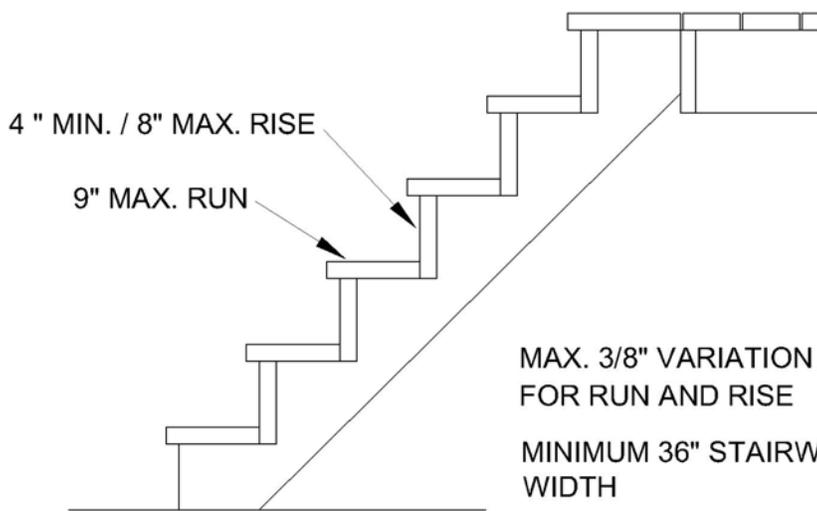
TYPICAL DECK SUPPORT AND CONNECTION DETAILS

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HANDRAILS REQUIRED ON  
STAIRWAYS WITH 4 OR  
MORE RISERS.

GUARDRAIL REQUIRED ON  
STAIRWAYS WITH A TOTAL  
RISE OF 30" OR MORE.



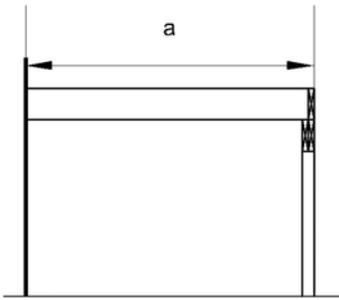
MAX. 3/8" VARIATION ALLOWED  
FOR RUN AND RISE

MINIMUM 36" STAIRWAY  
WIDTH



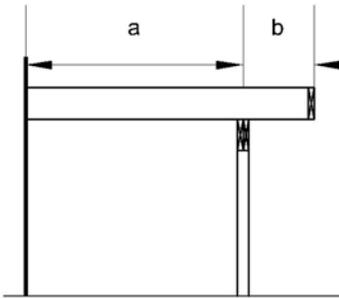
TYPICAL DECK STAIR AND  
GUARDRAIL DETAILS

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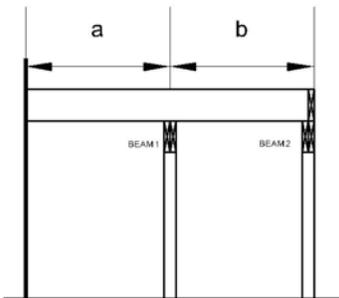
**Case I Solution:** Refer to table for joist and beam sizes

**EXAMPLE:**  $a = 12'$ , Post Spacing =  $8'$  Refer to the span table. Joist size may be either 2x8's 12" O.C. or 2x10's 16" O.C. Beam size may be either 3 - 2x8's or 2 - 2x 10's



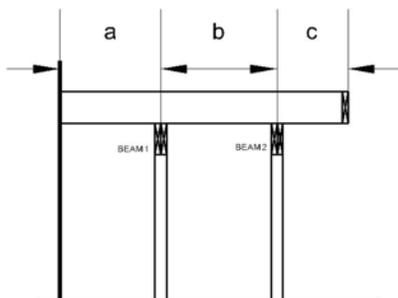
**Case II Solution:** Use "a" for joist size and "a" + "b" to determine beam size (The length of "b" is restricted by both the length of "a" and the size of the joists).

**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" O.C. or 2x8's 24" O.C. 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 III 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" O.C., or 2x8's 24" O.C. 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 IV Solution:** Use "a" or "b", whichever is greater, to determine joist size. Use "a" + "b" to determine the size of Beam No. 1 and "b" + "c" to determine the size of Beam No. 2. (The length of "c" is restricted by both the length of "b" and the size of the joist).

**EXAMPLE:**  $a = 7'$ ,  $b = 8'$ , Post Spacing =  $12'$   
The longest joist span is 8'; therefore, the table indicates that 2x6's 16" O.C. or 2x8's 24" O.C. 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, i.e., 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 .



DECK DESIGN EXAMPLES FOR DETERMINING JOIST AND BEAM SIZE

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