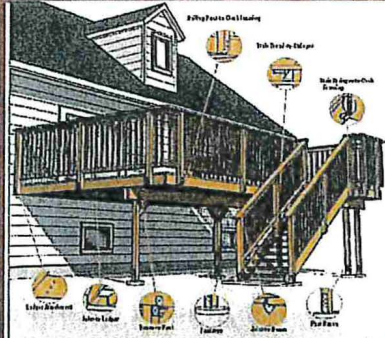


Residential Decks

1 & 2 Family Dwellings and Townhouses

City of Red Wing

Community Development
Department
651-385-3623
www.ci.red-wing.mn.us





This handout is intended only as a guide and is based in part on the 2015 Minnesota State Building Code, and the City of Red Wing ordinances and good building practice. While every attempt has been made to insure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or contractor. For specific questions regarding code requirements, refer to the applicable codes or contact your local Building Department.

Building Permits Requirements:

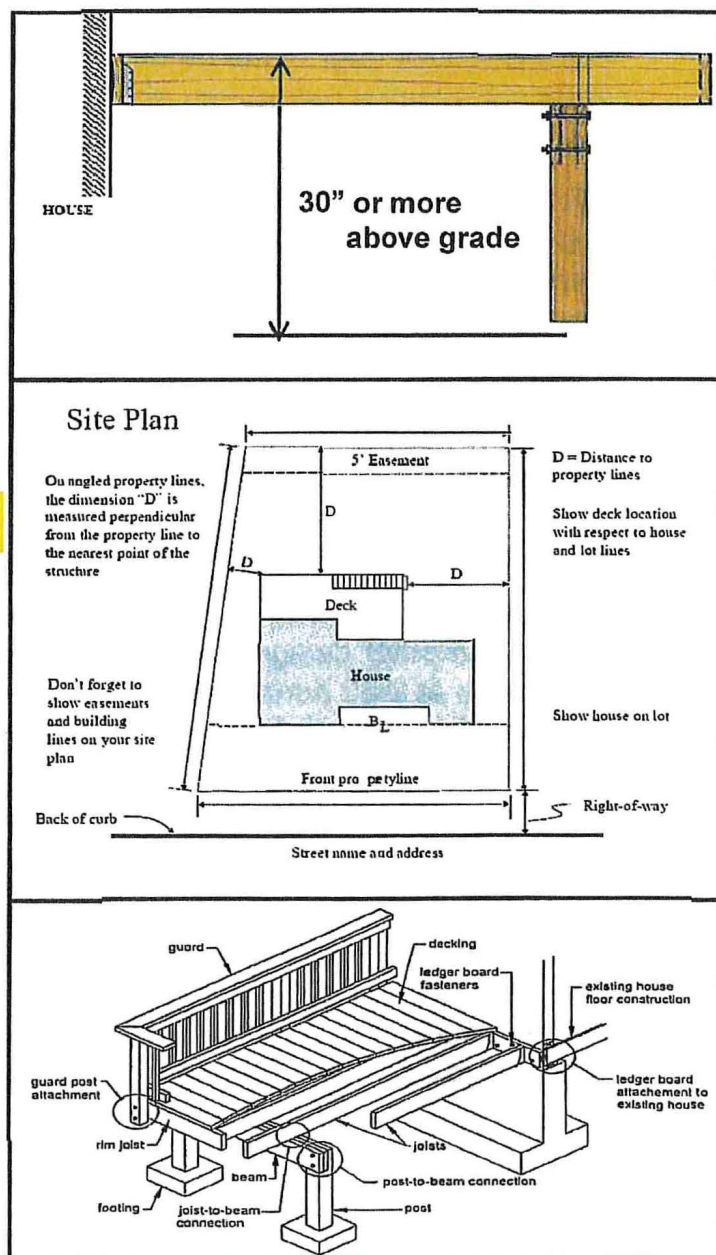
Building permits are required for the construction of all decks that are attached to the home and for freestanding decks that are elevated 30" or more above grade. Deck construction shall meet the requirements of the 2015 Minnesota State Building Code which adopts and amends the 2012 International Residential Code.

Zoning Requirements:

Decks are also required to meet the land use and setback requirements of the zoning code. **Please prepare and submit a Site Plan for our Review**

Plan Review & Inspections:

The plan is reviewed by the plans examiner in order to identify potential problems that may arise prior to construction. Construction inspections will be done during the project to ensure code compliance and that the materials used are installed correctly.





Builders and homeowners are required to obtain a permit prior to constructing, altering or replacing a deck.



The following are examples of information that should be included on plans submitted for building permits for residential decks. They are **examples** only and should not be construed as being code compliant for every application. It is the responsibility of the homeowner or person preparing the plans to show in detail how they will build their deck. Some designs may require more detail than others.

Your deck plans should replicate exactly how you will build your deck. We will review your plans before we issue the building permit to verify code compliance before you start work. The more detailed your plans, the more likely you will avoid mistakes during construction.

When you receive your permit, you will also be given one set of plans stamped "Approved". Once your plans are approved, you should not change your design without approval by the City of Red Wing Building Inspector. ***You should read through the approved plans to determine if the plan reviewer noted any corrections to your plan.*** If you have any questions regarding any of the corrections you should contact us before proceeding. **Stamped approved deck plans shall be readily accessible at all inspections.**



Permit holder is responsible for scheduling all inspections.



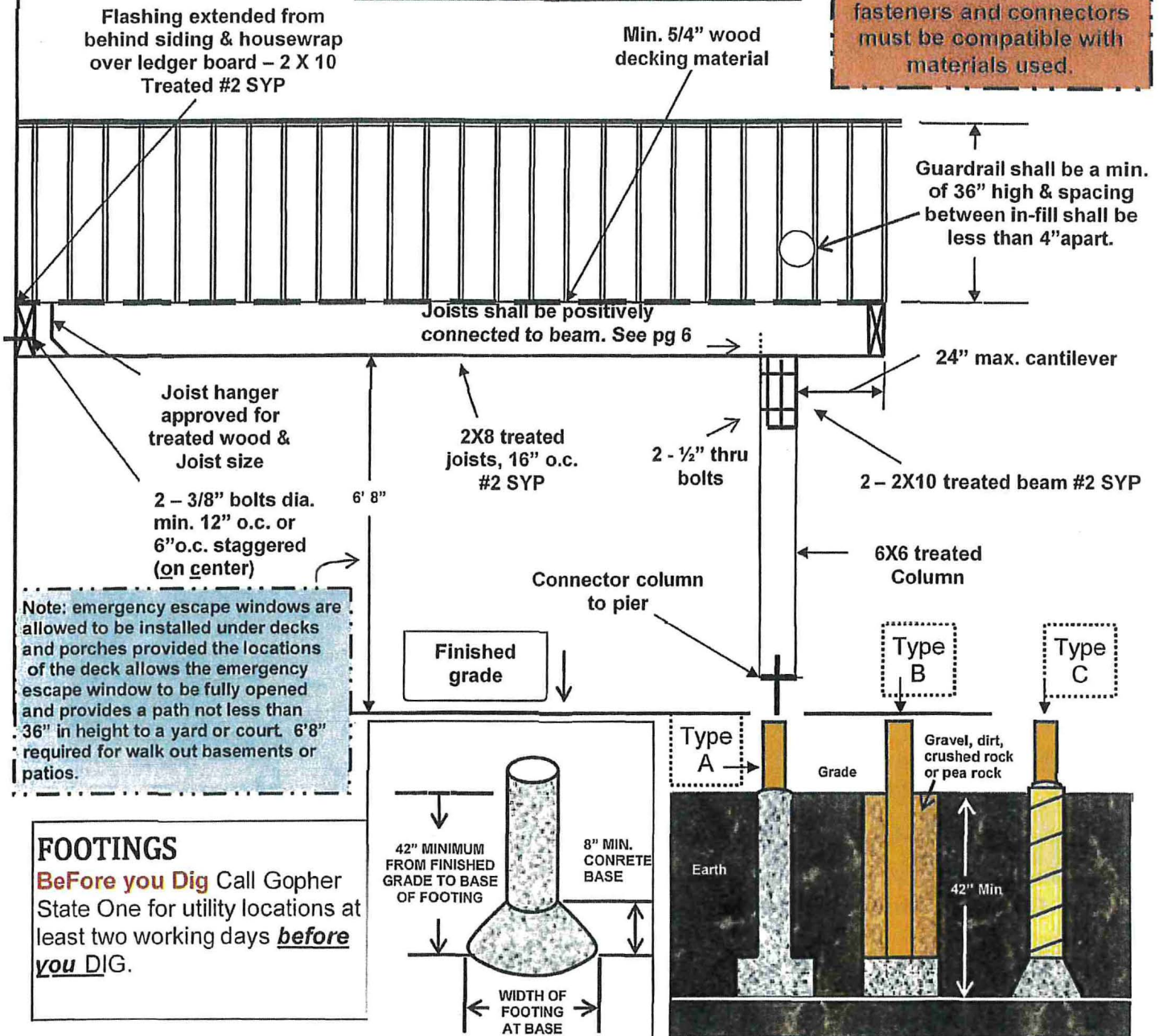
Plans created at home centers are seldom acceptable for plan review. These computer designs do not allow homeowners to duplicate actual conditions at their home. Some of these plans may be modified to include all necessary information prior to submittal. Applications submitted with these types of plans without additional modifications will be returned to the applicant.



THINK YOU MIGHT ENCLOSE YOUR DECK IN THE FUTURE?

Deck plans are approved on the assumption that the deck will be used only as a deck for the life of the structure. Because footing sizes, setbacks, structural supports and a host of other deck components are different for enclosed porches than for decks. You should then design your deck to carry future loads and meet setbacks and other rules.

TYPICAL DECK CROSS SECTION CITY OF RED WING



FOOTINGS

BeFore you Dig Call Gopher State One for utility locations at least two working days **before you DIG**.



To accurately size footings, beams and joist refer to tables on pgs 11-13.

**Beam and Footing Sizes
Maximum Joist Span**

Footings supporting a 4x6 column must be not less than 8-inch diameter. Post footings supporting columns larger than 4x6 must be not less than 8-inch diameter. The bottom of post footings may be "belled" to achieve the desired minimum bearing area. The base of the footing must be at least 42 inches below finished grade. Care should be exercised to center the column on the footing. Posts imbedded in the ground must be labeled ground contact or equal. The use of a fiberboard tube will allow you to elevate the top of the footing above finished grade to provide protection of the wood post from lawn mowers and trimmers.

WARNING: THIS IS AN ILLUSTRATION ONLY. IT IS INTENDED TO SHOW SOME OF THE INFORMATION THAT SHOULD BE INCLUDED ON YOUR DECK PLANS. IT IS NOT INTENDED TO SHOW COMPLIANCE WITH ANY CODES THAT MAY APPLY. THE HEIGHT AND SIZE OF A DECK WILL CAUSE VARIATIONS IN CODE REQUIREMENTS.

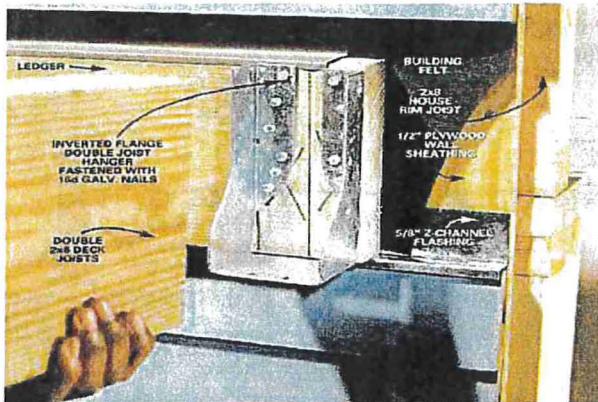
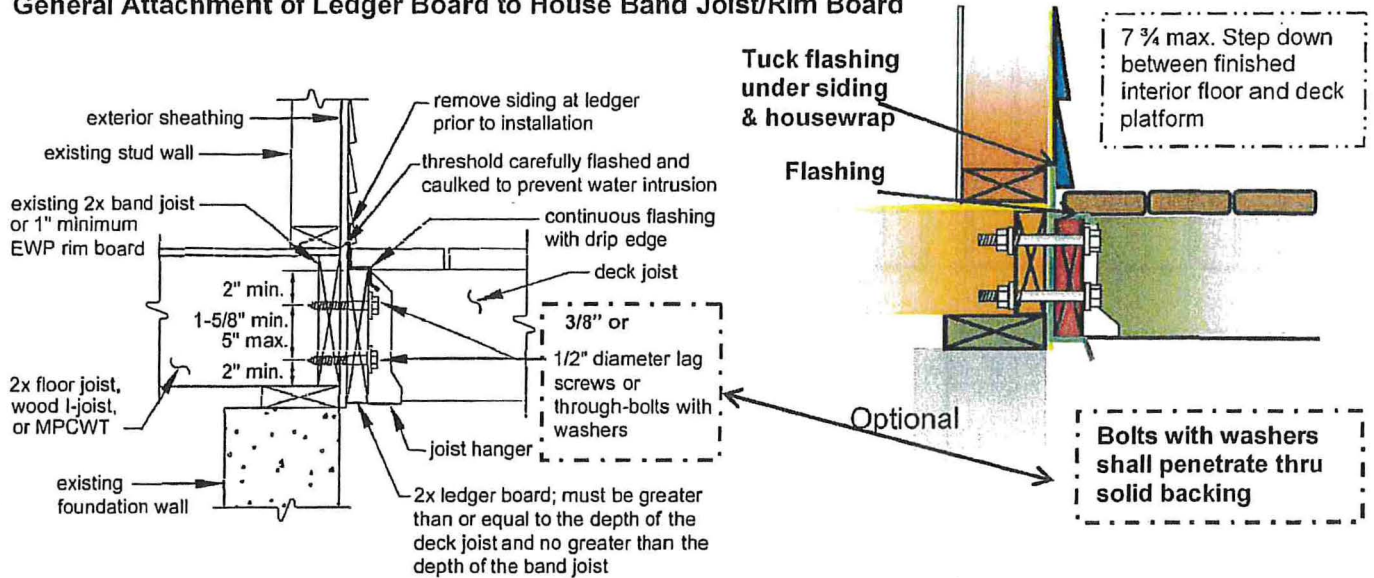


DECK FRAMING

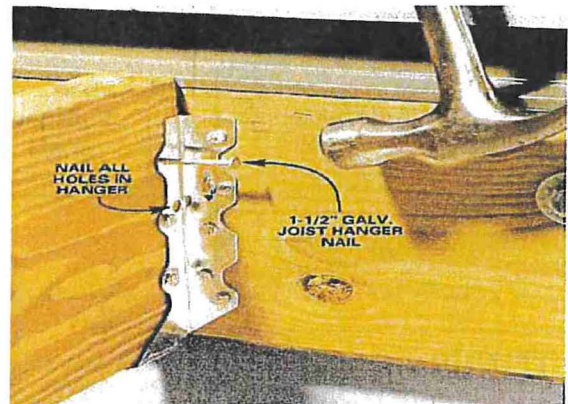
Ledger Board Connection

The ledger board attaches to the house frame or foundation. ***Make sure the ledger is securely attached to the dwelling. Install flashing at top, and caulk sides and bottom.***

General Attachment of Ledger Board to House Band Joist/Rim Board

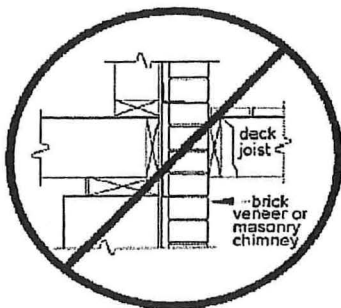


CONCEALED FLANGE HANGER

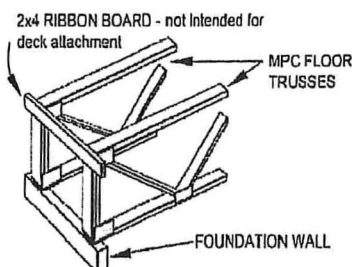


CONVENTIONAL HANGER

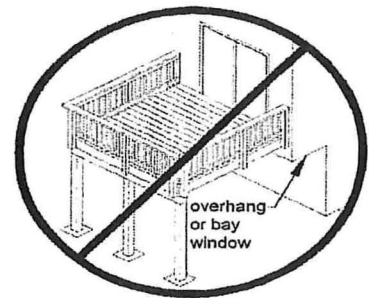
No Attachment to or Through Exterior Veneers (Brick, Masonry, Stone)



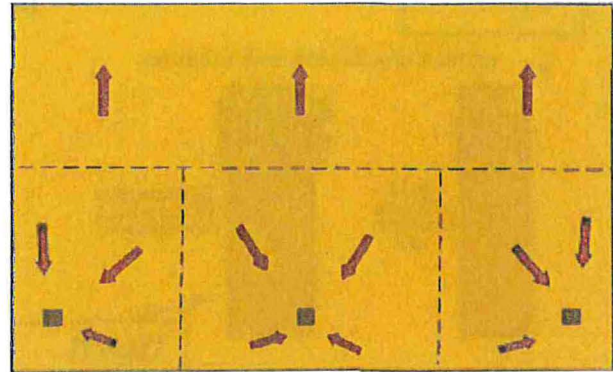
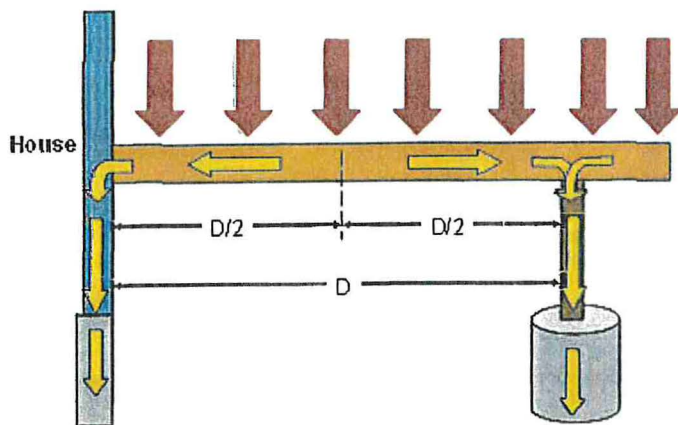
Metal Plate Connected (MPC) Wood Floor Trusses with a 2x4 Lumber "Ribbon" at the Ends of the Trusses



No Attachment to Over Hangs



Understanding Load Paths

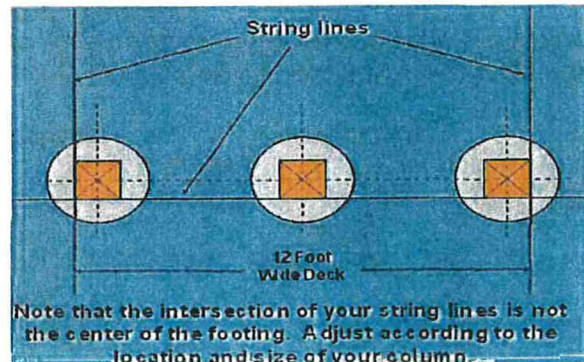
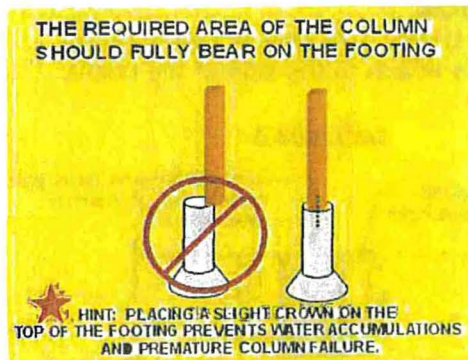
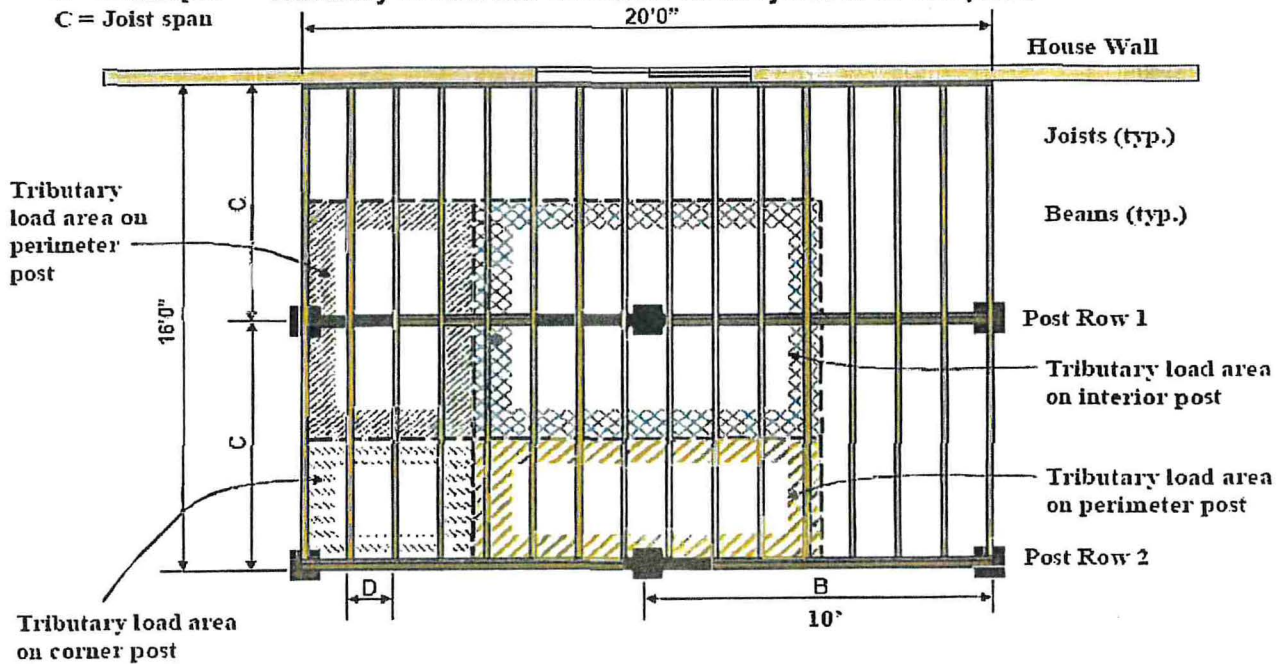


Loads are assumed to be uniform across the floor

Tributary load area for posts

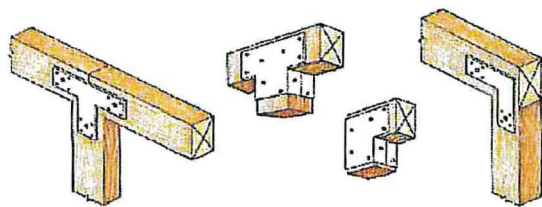
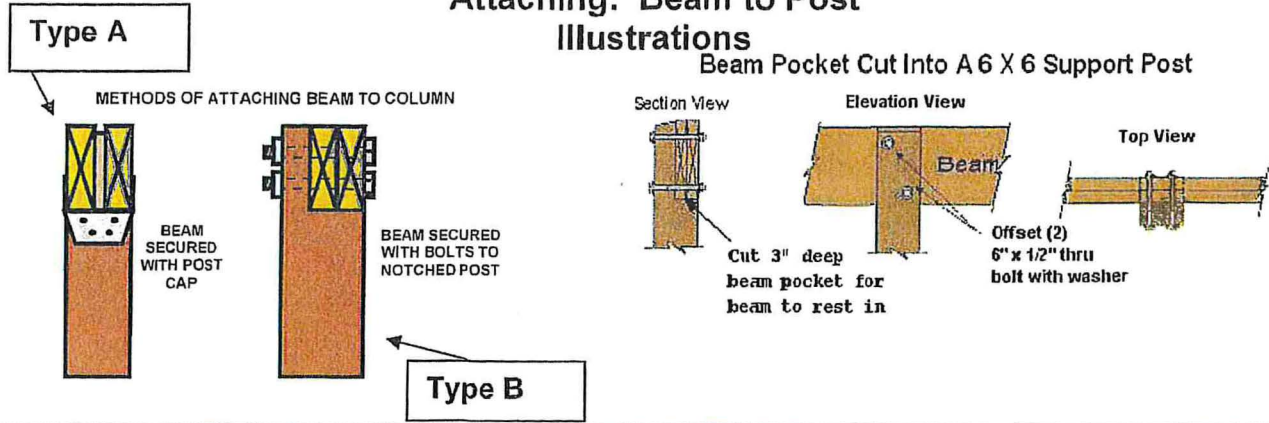
B = Beam span
C = Joist span

Tributary is half the distance: of the joist or to the post.



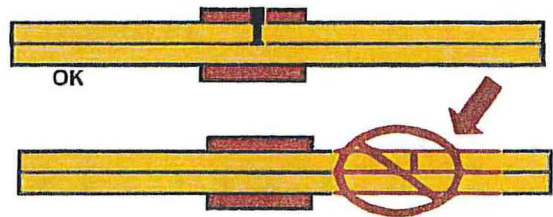
Attaching: Beam to Post Illustrations

Beam Pocket Cut Into A6 X 6 Support Post

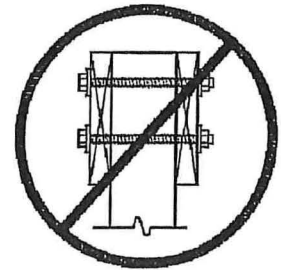
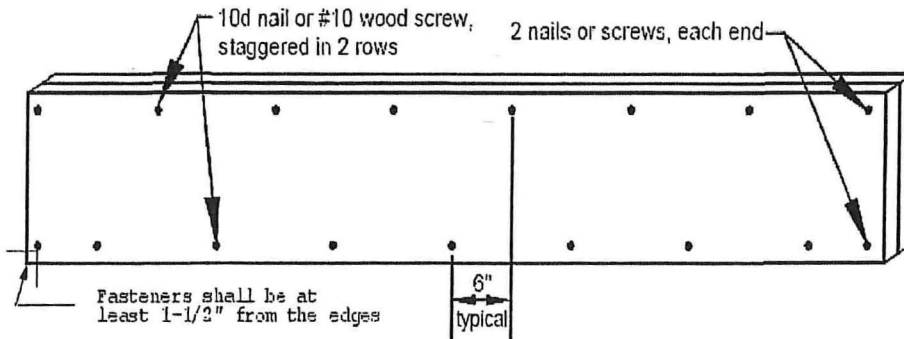


Type C

BEAM SPLICES

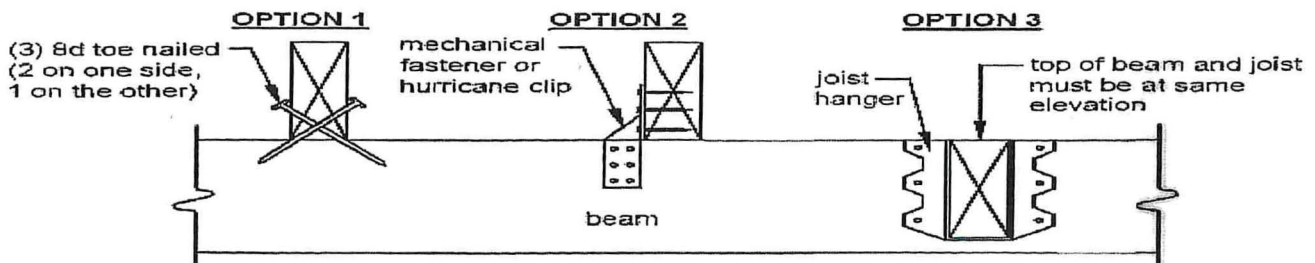


Construct the beam using two or more 2 inch nominal pieces of lumber. Nail the beam together using 10d - 16d nails at 16 inches o.c. along each edge of the beam. A spacer may be used to fir the beam to a 3½ -inch width. Beams should be installed with any arch or crown facing up.

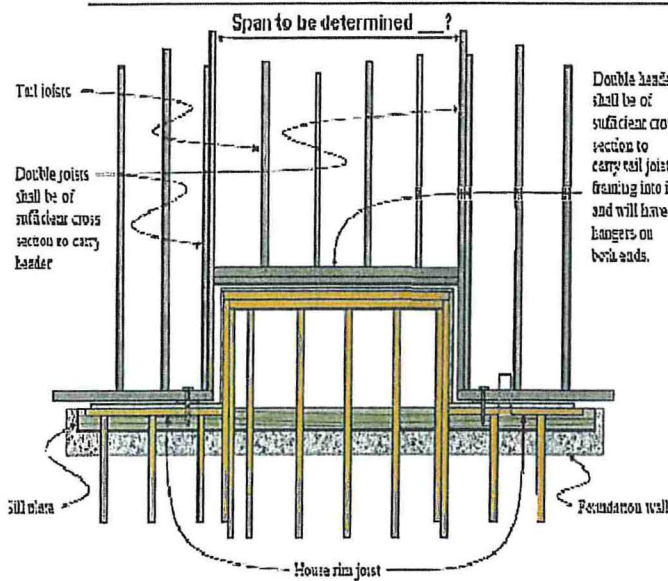


JOIST-TO-BEAM CONNECTION

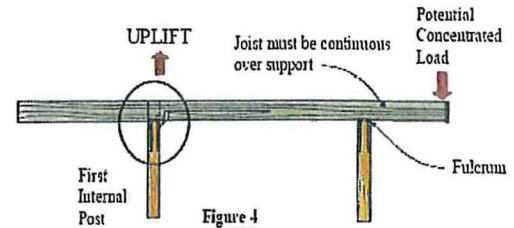
Each joist shall be attached to the beam as shown. Use Option 1 or Option 2 when joists bear on or overhang past the beam. Use Option 3 when joists attach to the side of the beam.



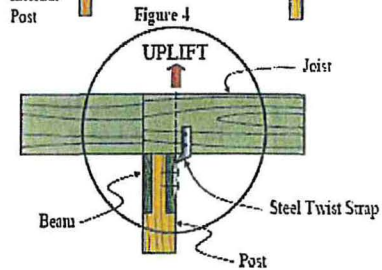
Cantilever Options



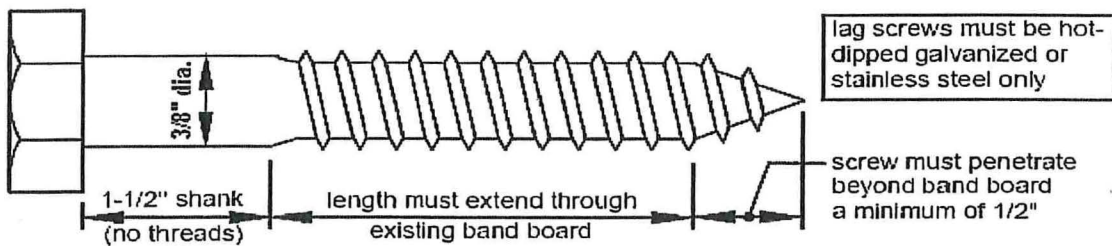
Cantilevered connection



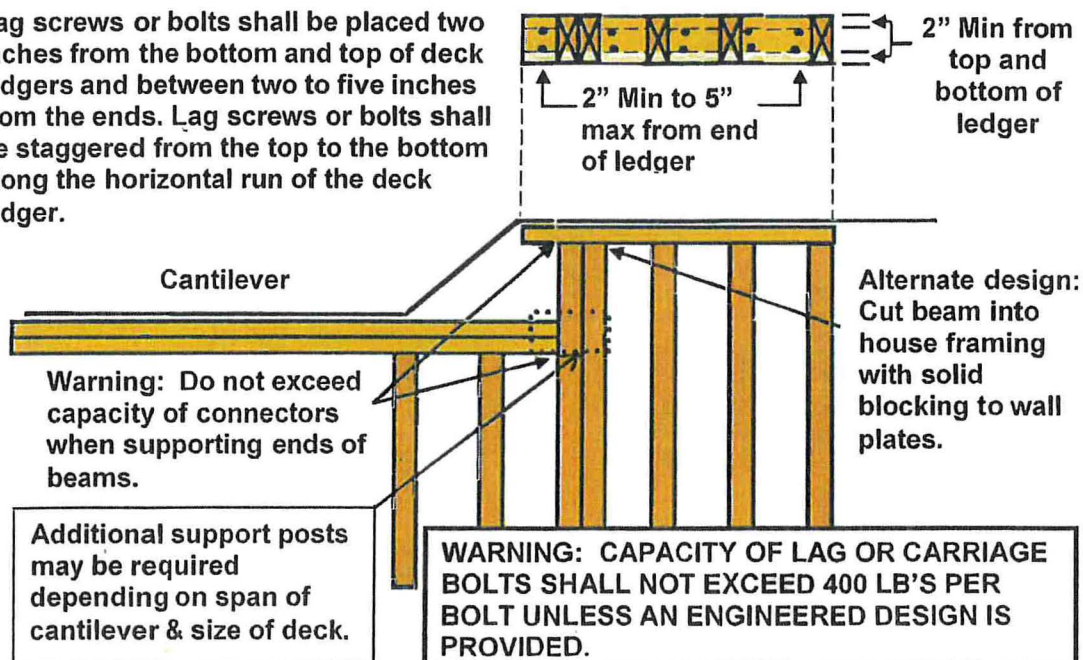
Effect of concentrated load on overhang produces uplift at interior support



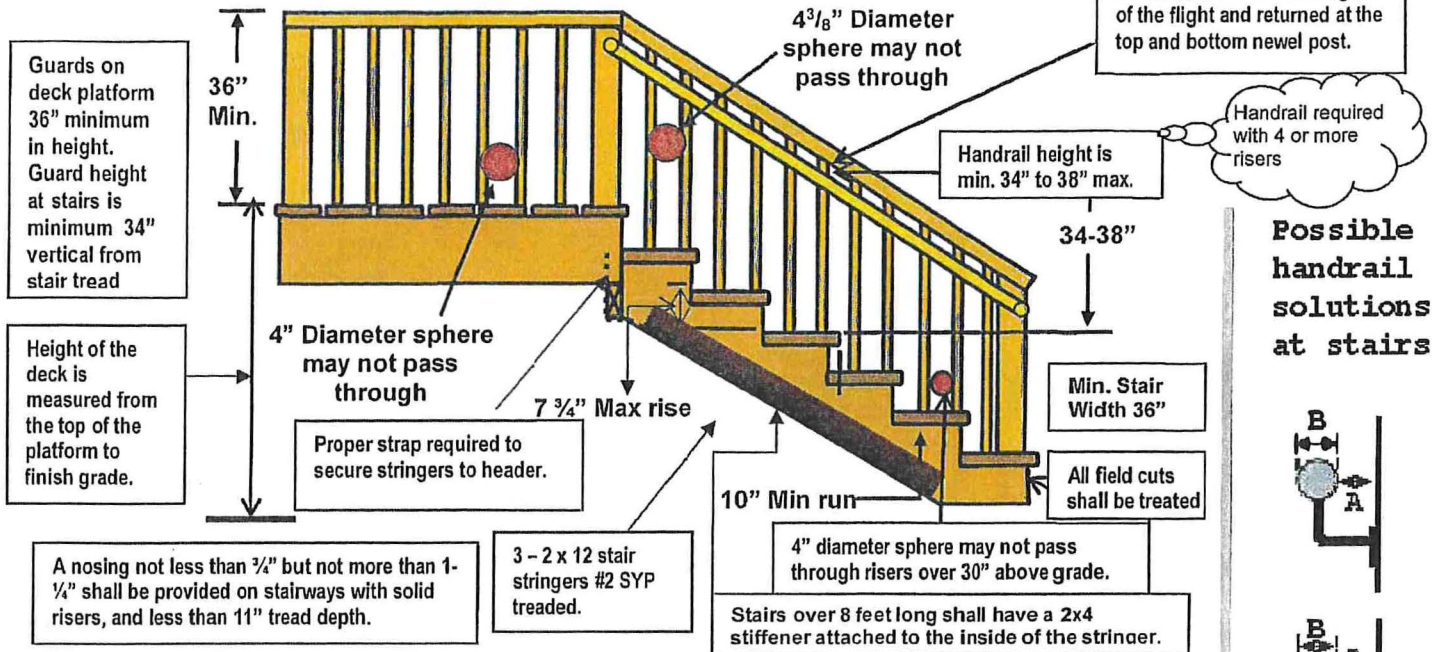
All thru bolts and lag screws shall be installed with washers.



Lag screws or bolts shall be placed two inches from the bottom and top of deck ledgers and between two to five inches from the ends. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger.



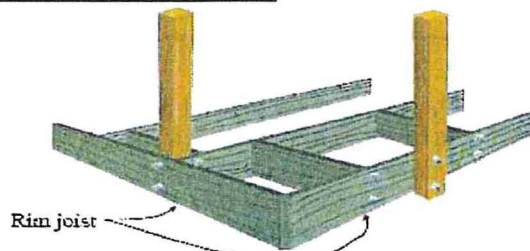
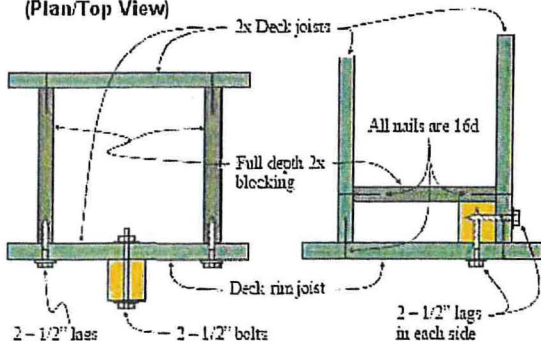
A TYPICAL STAIR FRAMING DETAIL



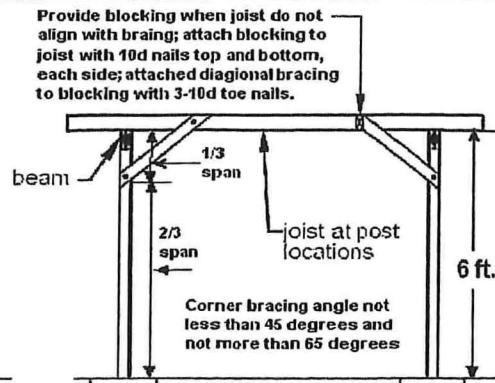
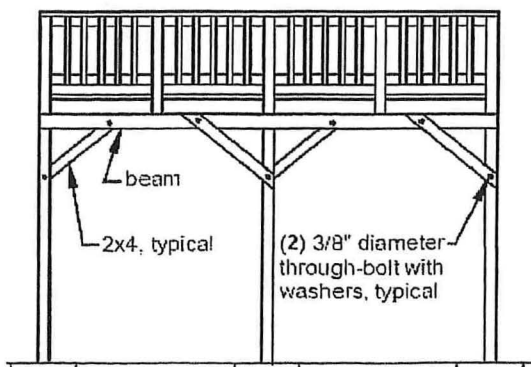
Stairway illumination. All interior and exterior stairways shall be provided with a means to illuminate the stairs, including the landings and treads. The illumination of exterior stairways shall be controlled from inside the dwelling unit. Lights that are continuously illuminated or automatically controlled can be used.

Reinforced Post Connections (Three dimensional view)

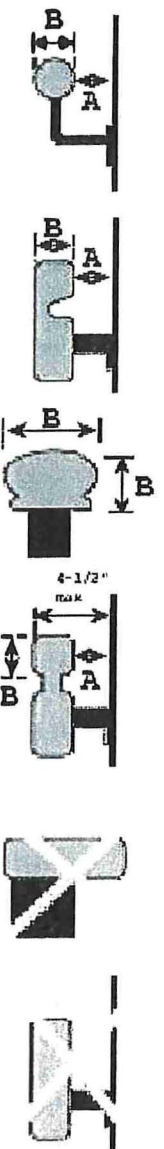
Reinforced Post Connections (Plan/Top View)



The leverage from a deck railing post will twist the rim joist unless the rim joist is securely fastened to the joist end or perpendicular blocking. 1/2" lag screws or thru bolts are recommended for resisting code design loads.



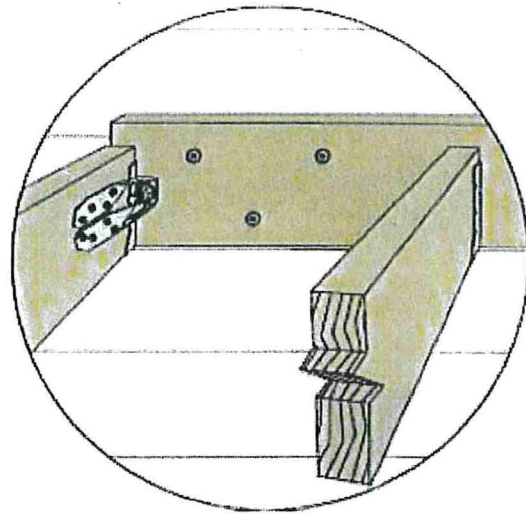
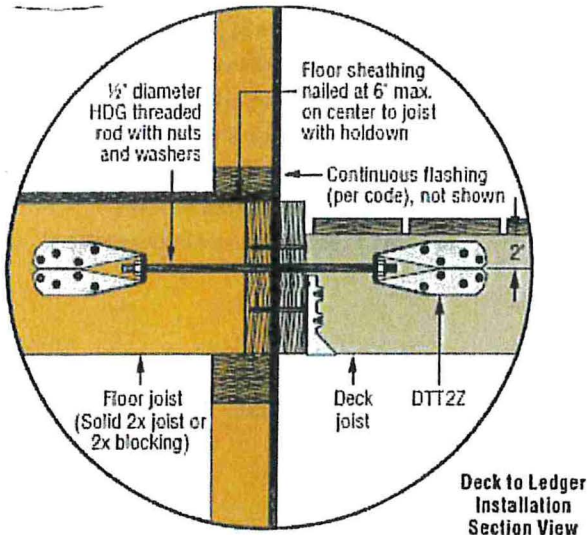
Possible handrail solutions at stairs



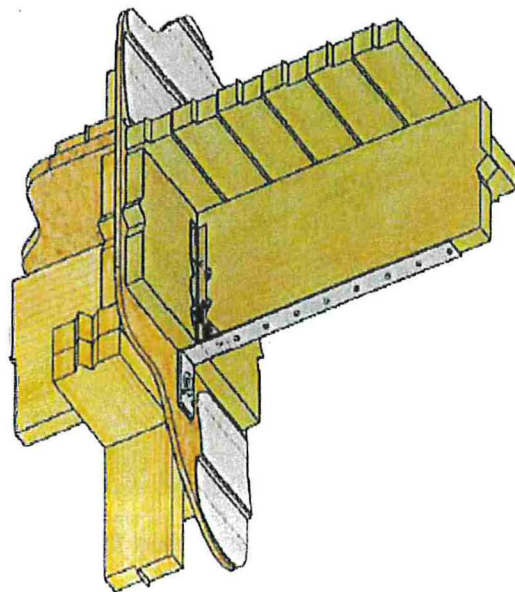
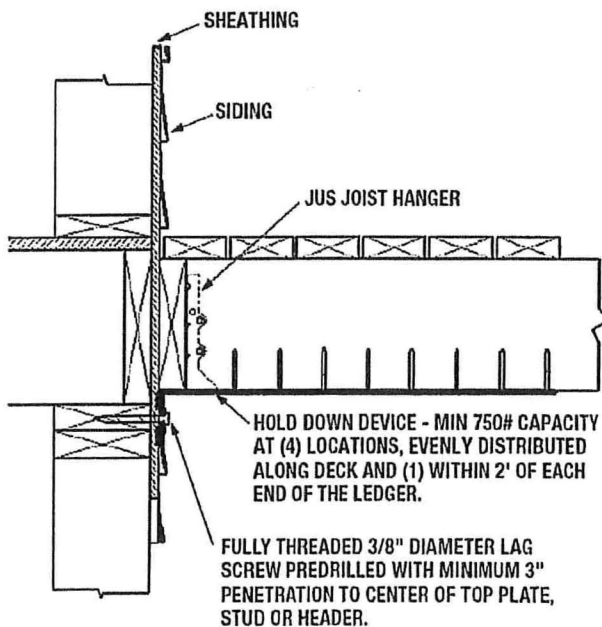
A = 1-1/2" min
B = 1-1/4" to 2-3/4"

New in 2015; MN State Building Code now requires all decks to have lateral load connection per IRC 507.2.3.

Ledger to band joist fasteners, lag screw, bolts and washers shall be hot-dipped galvanized or stainless steel.



Each lateral load connector shall have an allowable stress design capacity of not less than 1500 pounds. Follow the manufacturer's installation instructions for correct use and attachment of the connectors. **This type connector shall be placed at a minimum of two locations** (each outer rim joist at deck perimeter).



This lateral load tension device shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds

2nd floor attachment at top plates.

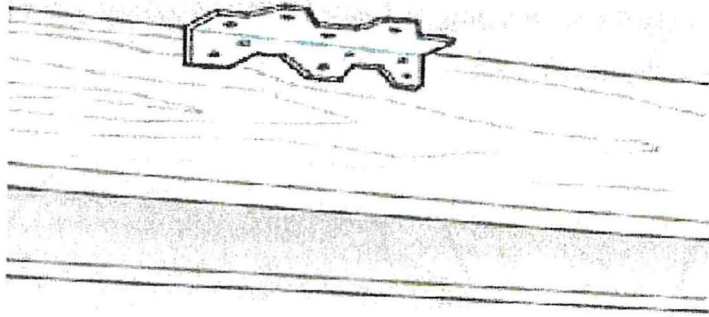
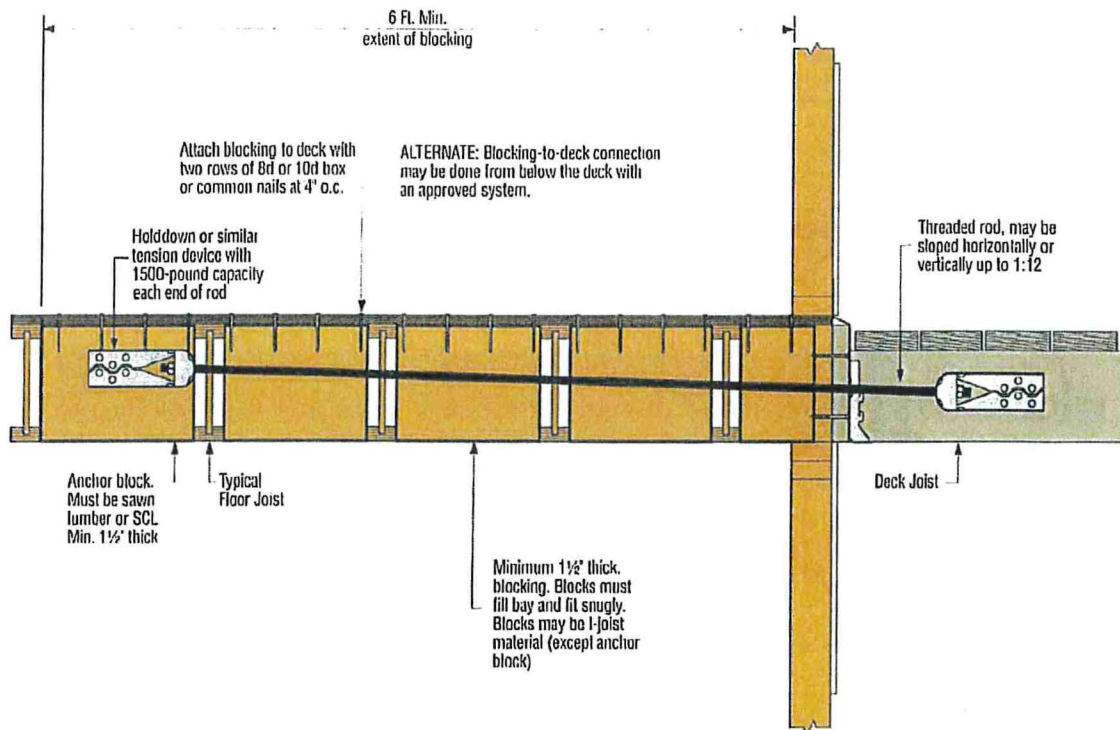


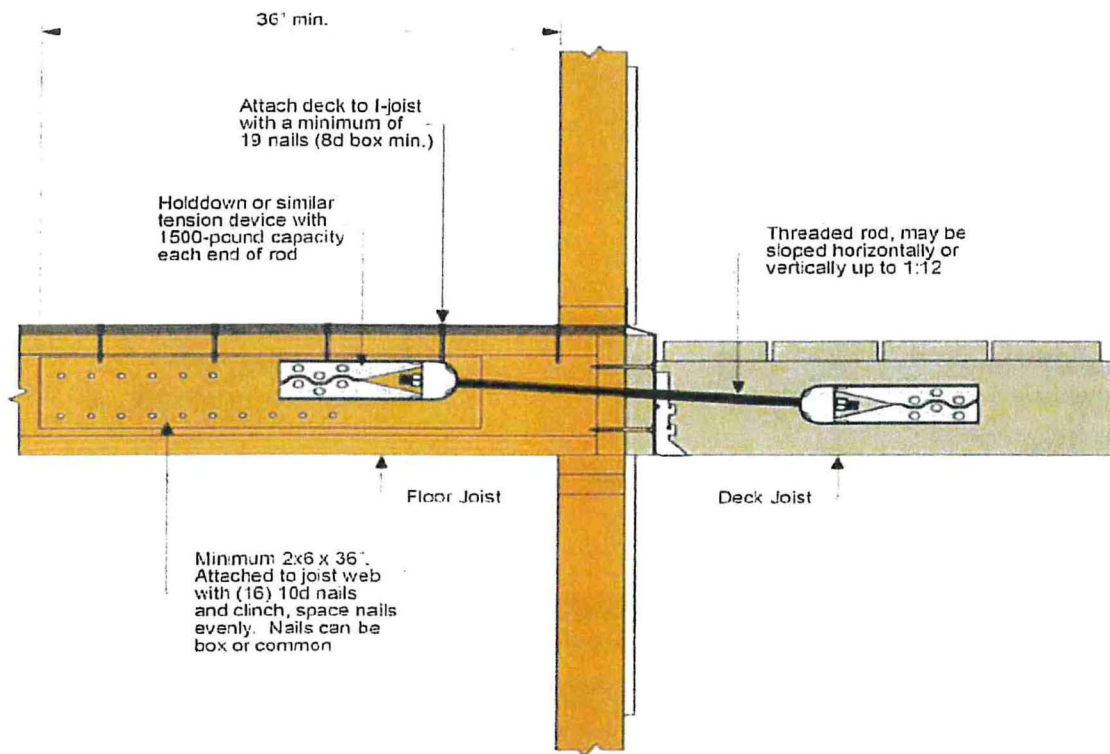
Figure 2. For situations where it's not possible to verify how well the floor above is nailed to the joist where a tension anchor is to be attached, hardware manufacturers provide an alternative method.



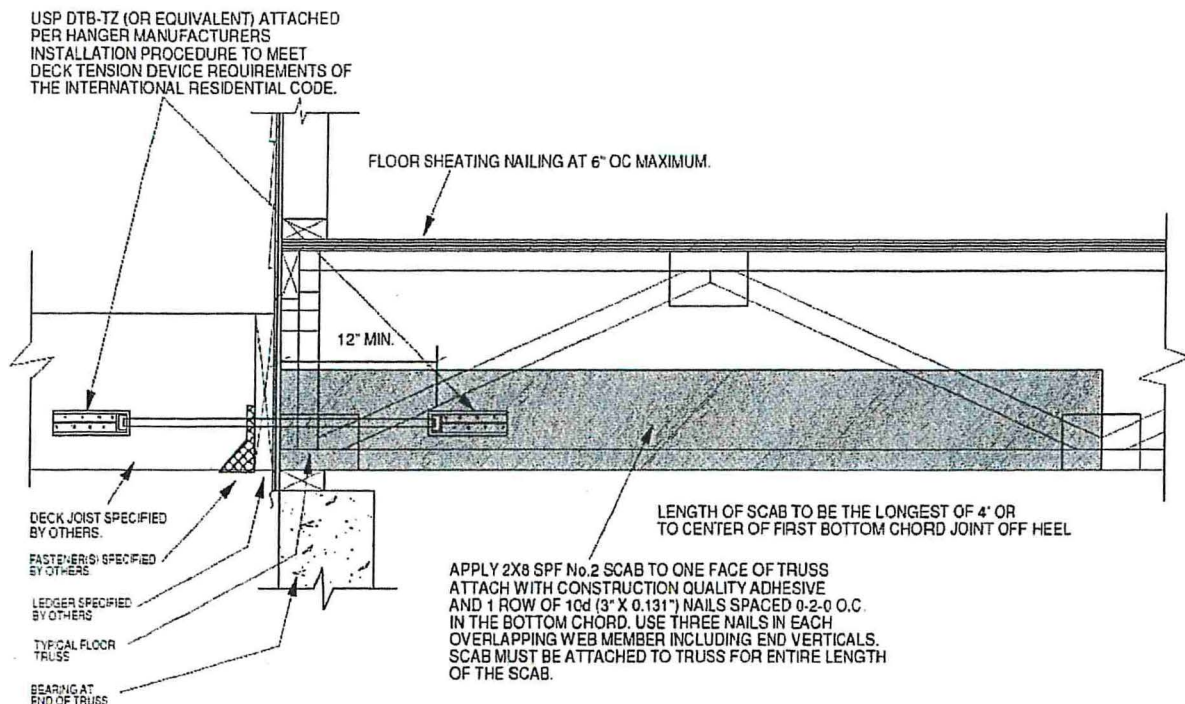
Interior view of blocking and floor sheathing connection when existing joists run perpendicular to deck joists.



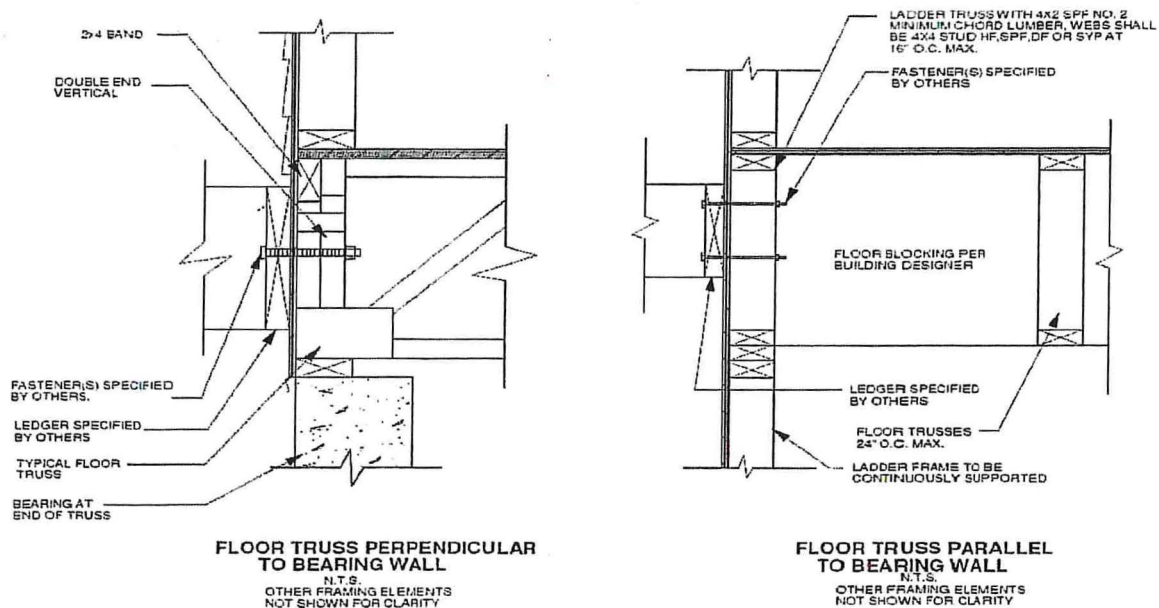
Deck Framing Perpendicular to I-Joist Floor Framing



Deck Framing Parallel to I-Joist Floor Framing



Typical Open floor Truss connection detail for lateral load connection.



NOTES:

DETAIL PERMITS A MAXIMUM OF TWO 1/2" DIA. THRU BOLTS OR LAG SCREWS TO BE INSTALLED ALONG THE VERTICAL CENTER LINE AND INTO THE DOUBLE END VERTICAL OF FLOOR TRUSSES OR INTO THE 4X4 VERTICALS OF A LADDER TRUSS.

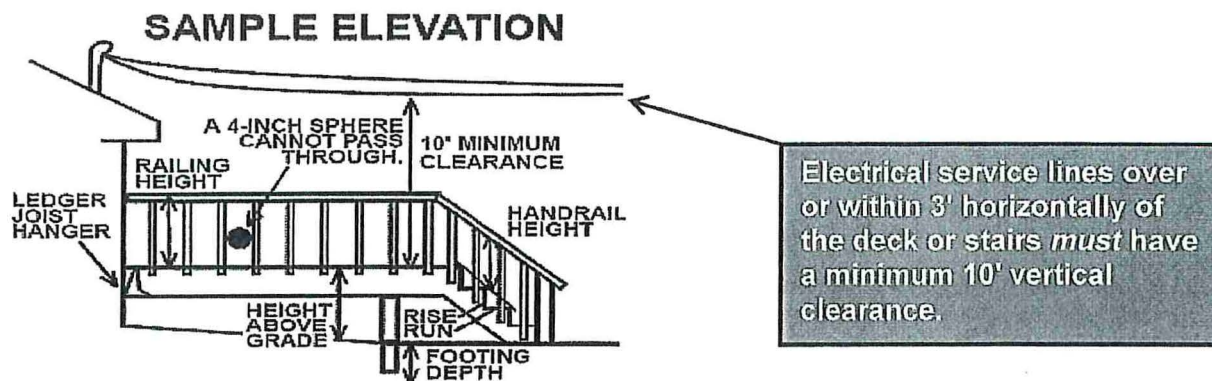
FASTENERS SHALL NOT INTERFERE WITH ANY JOINTS OR CONNECTORS WITHIN THE FLOOR OR LADDER TRUSS AND BE INSTALLED PER NDS.

CAPACITY OF CONNECTION SHALL BE SPECIFIED BY THE BUILDING DESIGNER. REFER TO NATIONAL, STATE, LOCAL BUILDING CODES OR STANDARD INDUSTRY DETAILS APPROVED BY THE BUILDING OFFICIAL.

DETAIL HAS CONSIDERED VERTICAL LOAD CAPACITY OF THE FASTENERS ONLY. ALL OTHER FRAMING ELEMENTS REQUIRED TO SUPPORT AND OR RESIST ANY OTHER LOADS AND OR FORCES SHALL BE THE RESPONSIBILITY OF OTHERS.

DESIGN OF ALL DECK OR PORCH COMPONENTS SHALL BE BY OTHERS.

Example of ledger connection on open web trusses.



RAILINGS

Guardrails are required for portions of decks 30" or more above grade. The height of the rail must be a minimum of 36". Open guardrails must have intermediate rails or an ornamental pattern that a 4" sphere cannot pass through. Guardrails must continue down stairs where the stair is more than 30 inches above grade.

STAIRS

Stairs must have a maximum rise of $7\frac{3}{4}$ inches and a minimum run of 10 inches. The run is measured from the nosing of one tread to the nosing of the next. The greatest riser height within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ inch. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ inch.

Maximum step down is $7\frac{3}{4}$ " from interior finished floor to top of the deck platform at the patio door.

Open risers are permitted provided that a 4" diameter sphere will not pass thru the opening between the treads.

Stairs over 8' in length shall have a 2x4 stiffener attached to the inside face below the stair cuts for strength.

SAFETY GLAZING

All glass (windows) shall be reviewed for tempered glazing requirements. Be sure to show location of all windows in relation to deck stairs, landings, top and bottom treads, and walking surfaces.

Decking

Materials commonly used for decking include standard dimension lumber (either 2X4 or 2X6), radius-edged decking, or a manufactured decking product. **2X6 dimension lumber is the only lumber product that can be used on joist spacing of 24 inches.**

Radius-edged Patio Decking has been specifically developed for outdoor decks. **Patio decking is intended to be used flat-wise in load-bearing applications where joist spacing does not exceed 16" o.c. (12" o.c. when installed diagonally to joists).**

Manufactured decking products may be used only when approved by the Building Department. This approval is based on the material carrying an NER research report. Decking without a research report will not be approved. Ask the decking supplier to provide you with a copy of the research report. The Building Department maintains a list of decking materials that have been approved for use in Minnesota that is available upon request. **Caution – some manufactured deck products are approved for decking but not for stair treads. In some cases where manufactured decking is approved for stairs, the spacing of supports may be significantly reduced compared to use on the deck itself. Read the research report for further information.**

MAXIMUM DECK BOARD SPANS	
5/4 AND 2X4 PERPENDICULAR TO JOIST	16" O.C.
5/4 AND 2X4 AT 45 DEGREES TO JOIST	12" O.C.
2X6	24" O.C.



Wood Treatment

Wood used above ground, in contact with the ground, or below ground requires different degrees of treatment. Check the labels of the material you are buying to determine where it can be used. ***Because the new preservative treatments are very corrosive, make sure that any metal connectors used in the construction of your deck are approved by the manufacturer for use with treated wood.***



INSPECTIONS

The Building Department will typically make at least two inspections of your deck. It is your responsibility to call for an inspection 1-2 days in advance of the time you need an inspection. When you call for an inspection, you will be asked for your address and the type of inspection you desire (footing or framing/final), and the time you want the inspection. We will make every effort to accommodate requests for inspections at specific times.

The first inspection will be of the post footings. At the time of the inspection, property pins shall be exposed, the holes should be dug and all loose material should be removed but no concrete should be placed. The inspector will check the depth of the footing and its width at the base. They shall also check the location of the footings for compliance with the zoning ordinance. If you are having problems with water seeping into the hole, you may wish to insert a large plastic garbage bag into the hole and pour the concrete into the bag to displace water without compromising the concrete.

The framing and final inspection can be inspected together as one final inspection if all structural elements are visible and accessible to the inspector. The inspector will check the size and spacing of joists, beams and columns, the attachment to the dwelling including flashing, the type of fasteners/connectors and the lumber being used, type of decking used, railings, stairs, and landings. If your deck will be built such that the underside of the deck will not be visible or accessible at the final inspection, or you wish to have a framing inspection done prior to installation of decking and rails, please call for that inspection.

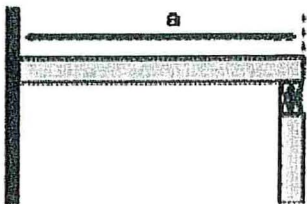
The inspection record card and approved plans must be available whenever an inspection is made. The inspector will sign the record card if the work is approved and this will be your authorization to proceed to the next step. If you will not be present for the inspection: place the record card, plans and requested information near the worksite where they can be found by the inspector. This record card will also provide documentation for you that your deck was inspected and approved.

If a violation is detected a notice will be prominently placed at the site noting the correction that must be made and time limit allowed for corrections. The notice will also indicate if a re-inspection will be necessary. If a re-inspection is necessary you must call for the inspection and have the correction approved before proceeding unless directed otherwise by the inspector.

If at any time during the construction of your deck you have a question, please do not hesitate to call the Community Development Department at (651) 385-3623. We will be happy to meet with you on the site to help resolve any concerns or problems.

SIZING DECK COMPONENTS – REFER TO TABLES FOR JOIST, BEAM AND FOOTING SIZE REQUIREMENTS ON THE FOLLOWING PAGES. SEE TABLES ON PAGES 12 & 13.

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

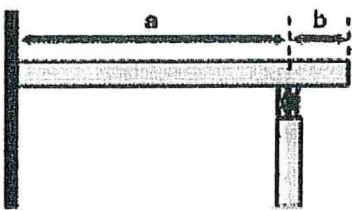


Use the **Maximum Joist Spans** table to find the acceptable joist sizes for a 12' span based on the species of lumber your supplier offers, e.g. Southern Pine 2x8s spaced at 16" on center (O.C.).

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 2x10s or two 2x12s depending on wood used. The footing diameter at the base must be a minimum of 12" for each corner post and 17" for all intermediate posts.

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

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.

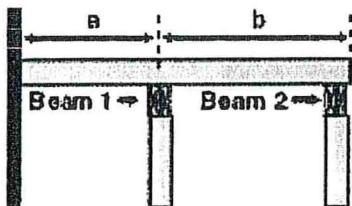


Refer to the **Maximum Joist Spans** table. For an 8' joist span, 2x6s from any species could be used with 16" O.C. spacing.

For sizing the beam, use a joist length of 10' (8' + 2') and a post spacing of 8'. The **Beam and Footing Sizes** table indicates that the beam may be either two 2x10s, depending on the wood species used. The footing diameter at the base must be a minimum of 11" for each corner post and 16" 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 2x6 spf spaced at 16" 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 2x12s or three 3x12s depending on the wood species used. The footing diameters for Beam 1 posts shall be a minimum of 13" for the corner (outside) posts and 19" 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 the wood species used. The footing diameters for Beam 2 must be a minimum of 10" for the corner posts and 14" for all intermediate posts

MAXIMUM JOIST SPANS (A 2-FOOT CANTILEVER CAN BE ADDED) **SEE NEXT PAGE FOR BEAM AND FOOTING SIZES**

Table assumes 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, total load Deflection L/240)

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

Stamp Lumber Species

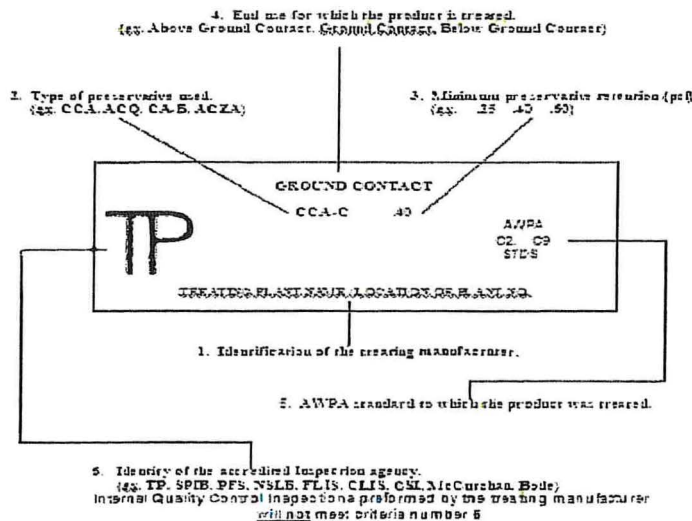
Western Woods -	West Wood	Southern Pine	White Woods - WW
SPF_s Spruce-Pine-Fir (South)		SYP Southern Yellow Pine	PPSP Ponderosa Pine-Sugar Pine
DOUG FIR-L Douglas Fir-Larch			PP-LP Ponderosa Pine-Lodgepole Pine

DF_S Douglas Fir-South

HEM FIR Hem-Fir

All pressure treated wood shall be properly identified with a fastened label or stamped with a quality mark.

Identification of Preservative-Treated Wood **Section 2303.1.8.1 & R319.2** **2006 International Building & Residential Code**

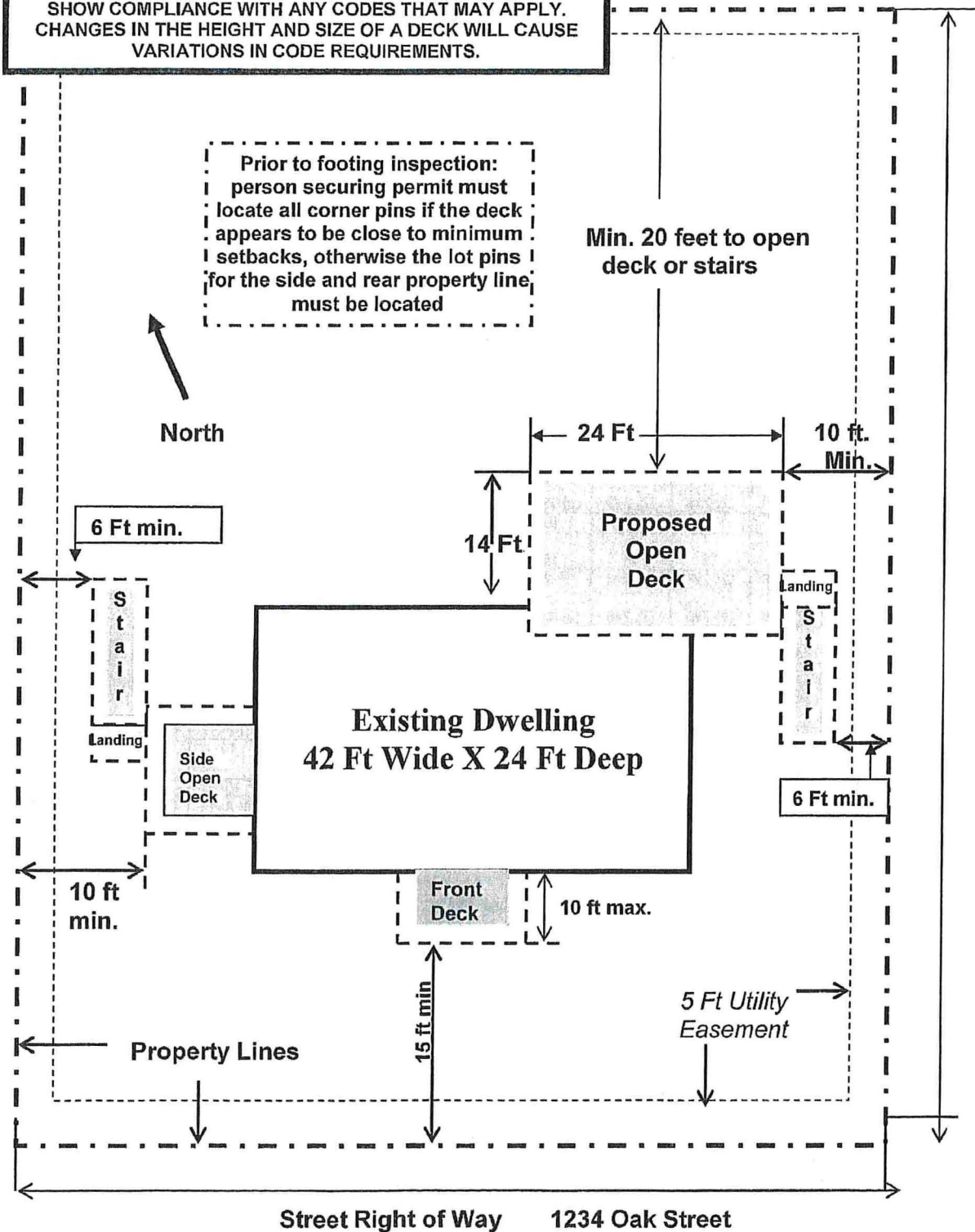


BEAM AND FOOTING SIZES

	Species or Group	Post Spacing										
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
6'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12
	Ponderosa Pine Beam	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(3) 2x10	(2) 2x12	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12
	Corner Footing	6	7	7	8	9	9	10	10	10	11	11
	Intermediate Footing	9	10	10	11	12	13	14	14	15	15	16
7'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(3) 2x8	(2) 2x12	(3) 2x10	(3) 2x12
	Ponderosa Pine Beam	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	(3) 2x12
	Corner Footing	7	7	8	9	9	10	10	11	11	12	12
	Intermediate Footing	9	10	11	12	13	14	15	15	16	17	17
8'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12
	Ponderosa Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm
	Corner Footing	7	8	9	9	10	10	11	11	12	13	13
	Intermediate Footing	10	11	12	13	14	15	16	16	17	18	18
9'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12
	Ponderosa Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Corner Footing	7	8	9	10	10	11	12	12	13	13	14
	Intermediate Footing	10	12	13	14	15	16	17	17	18	19	20
10'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	(3) 2x12
	Ponderosa Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Corner Footing	8	9	10	10	11	12	12	13	14	14	15
	Intermediate Footing	11	12	14	15	16	17	17	18	19	20	21
11'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Ponderosa Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(3) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Corner Footing	8	9	10	11	12	12	13	14	14	15	15
	Intermediate Footing	12	13	14	15	16	17	17	18	19	20	21
12'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm
	Ponderosa Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm	Eng Bm
	Corner Footing	9	10	10	11	12	13	14	14	15	15	16
	Intermediate Footing	12	14	15	16	17	18	19	20	21	22	23
13'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x10	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Ponderosa Pine Beam	(2) 2x6	(2) 2x8	(2) 2x8	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm	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	22	23	24
14'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Ponderosa Pine Beam	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm	Eng Bm
	Corner Footing	9	10	11	12	13	14	15	15	16	17	17
	Intermediate Footing	13	15	16	17	18	20	21	22	23	24	24
15'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm
	Ponderosa Pine Beam	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x12	(3) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm	Eng Bm	Eng Bm
	Corner Footing	10	11	12	13	14	14	15	16	17	17	18
	Intermediate Footing	14	15	17	18	19	20	21	22	23	24	25
16'	Southern Pine Beam	(2) 2x6	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm	Eng Bm
	Ponderosa Pine Beam	(2) 2x6	(2) 2x8	(2) 2x10	(2) 2x12	(2) 2x12	(3) 2x12	(3) 2x12	Eng Bm	Eng Bm	Eng Bm	Eng Bm
	Corner Footing	10	11	12	13	14	15	16	16	17	18	18
	Intermediate Footing	14	16	17	18	20	21	22	23	24	25	26

Eng Bm: An engineered beam (e.g. LVL, Microlam, etc.) is required for this joist length and post spacing. This beam and footing design only encompass open decks. No roof loads or additional loads have been considered.

WARNING: THIS IS AN ILLUSTRATION ONLY. IT IS INTENDED TO SHOW SOME OF THE INFORMATION THAT SHOULD BE INCLUDED ON YOUR DECK PLANS. IT IS NOT INTENDED TO SHOW COMPLIANCE WITH ANY CODES THAT MAY APPLY. CHANGES IN THE HEIGHT AND SIZE OF A DECK WILL CAUSE VARIATIONS IN CODE REQUIREMENTS.



CheckList for deck plan submittal

If your deck is a typical square or rectangular shape, a floor plan view is not necessary, please (fill in the blanks) on the back side of this page and submit with site plan and utility sign off (OPU) form to the Building Inspection Division. As an option you may submit accompanying drawings with the (fill in the blank) form.

If the shape of your deck is unusual (not typical) or the deck has special features within the design a separate plan must be submitted showing all the details of construction. Please include the following items on all plans submitted for construction: (Page 16 may be filled out to assist in providing this information.)

Name and Address

- Provide name, address and contact information including E-mail on drawings.

Footing

- Footing depth, size/diameter and design (type A, B, C), (see page 3 for example)

Site Plan (see page 14 for example)

- Street address and/or legal description
- Owatonna Public Utility sign off form
- Size/Location of existing buildings, easements and buffers
- All lot dimensions and pin locations
- Distance from all lot lines to proposed deck
- Locations of existing windows/doors (glass) and window wells if applicable (tempered glass may be required at landings (top or bottom), walking surfaces and adjacent to stairs)

Details

- Column to beam connection (see page 6)
- Column to footing/pier connection. (If applicable)
- Type of decking and orientation (Verify material specifications for 5/4 or composite decking with spans more than 16" o.c. or installed diagonally)
- Provide manufacture product type on decking material other than wood. See Building Inspection Website under [helpful information] for approved decking products.
- Lateral bracing is required when the deck platform is 6 feet and greater measured from the finished grade to the underside of the deck floor. (See page 8 for example)

Construction Plans (Floor Plan) (not typical decks)

- Submit at least one complete plan set.
- All measurements, distances, sizes and lumber dimensions have been noted on the plan
- Provide construction details for decks built at cantilevers
- Please provide size of deck? (Example 10' x 12')

Cross Section (See page 16 for example)

- Cross section of floor plan showing details from footing to the top of guard.
(It is ok to complete page 16 and submit as your cross section)

Framing Plan

- Floor plan view including dimensions, floor joist size, spacing and species/grade
- Show beam location, beam size, species/grade
- Size and location of all columns/post
- Orientation of the floor joists
- Changes in elevation, if different floor levels or tiered design.

Information:

- Minimum of 3-2x12 stair stringers for 36" inch wide stairs. Maximum 16 inch o.c. spacing for 5/4 decking. Consult manufacturer for composite material, spacing may be 12" inch o.c. maximum?
- Cantilever of Beams shall be a maximum of 12" inches beyond post.
- Cantilever of floor joists shall be a maximum of 24" inches beyond the beam support.
- Windows within top (36") and bottom (60") landings and adjacent to stairs may require safety glass. (see Building Inspection Website under [helpful information] for examples)
- A landing shall be provided at the bottom of stairs. (Grade is acceptable if equal stair riser height is provided).

Single Family Residential Open Deck Plan

Directions

1. Fill in the blanks on this page with dimensions and material which will be used to build the structure. Please print legibly.

Name: _____

Phone #: _____

Project Address: _____

Email: _____

Size of Deck? _____ x _____ (Example 10' X 12')

Size of ledger & size and amount of lags

(example: 2x10 ledger with two 3/8" x 5 1/2" lags @ 12")

Type of decking _____ x _____ - _____
(example: 1 x 4 - decking board or 2 x 6 - Trex)

2 x _____ floor joist, _____ lumber species, Spaced _____" apart
(example: 2 x 10; syp #2, spaced 16" apart) see page 12

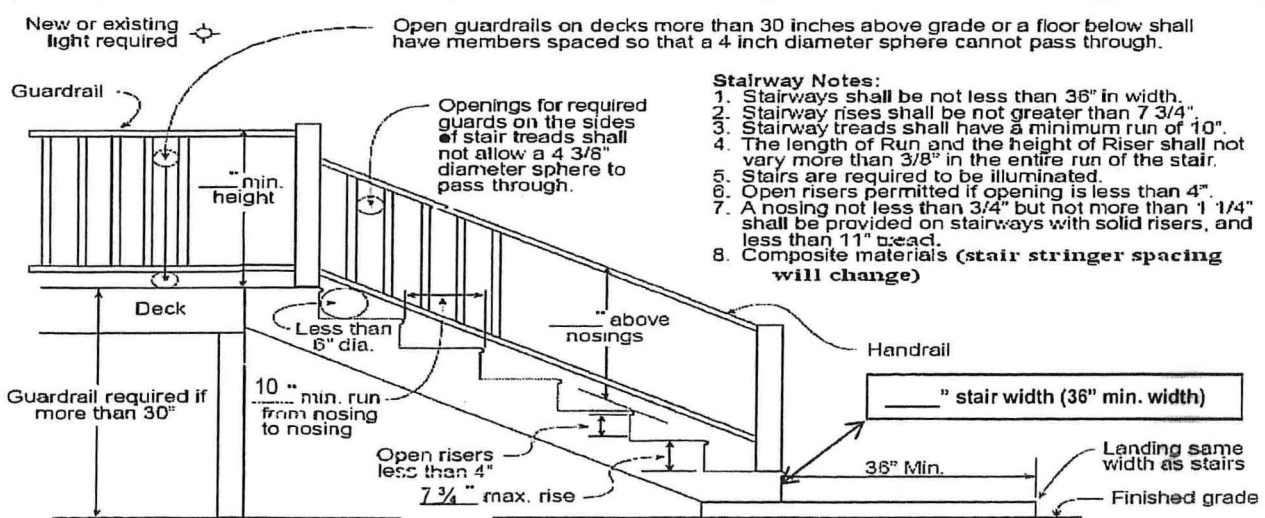
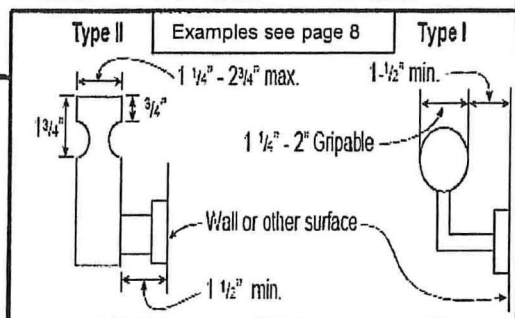
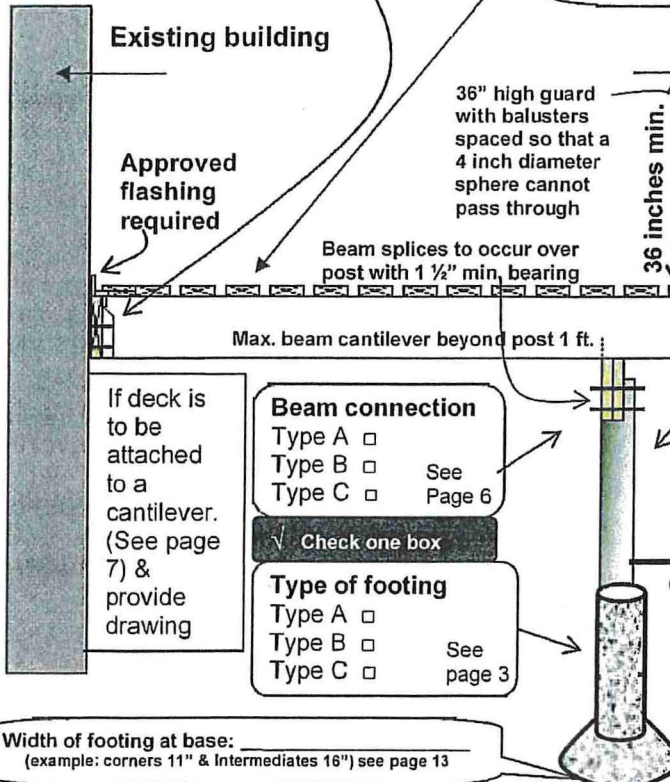
() 2 x _____ beam _____ lumber species
(example: 2- 2 x 10; syp #2, beam see page 13)

Post span _____
(example: 13' - 4" apart)

Floor Joist Cantilever _____"
(maximum: 24")

Size of post: _____
(example 4 x 6 or 5 x 6 or 6 x 6)

(Approximate) Height above grade: _____ ft & in
(example: 5' 6" from grade to deck)
(See page 8 for bracing above 6 ft)



Stairway Notes:

1. Stairways shall be not less than 36" in width.
2. Stairway rises shall be not greater than 7 3/4"
3. Stairway treads shall have a minimum run of 10".
4. The length of Run and the height of Riser shall not vary more than 3/8" in the entire run of the stair.
5. Stairs are required to be illuminated.
6. Open risers permitted if opening is less than 4".
7. A nosing not less than 3/4" but not more than 1 1/4" shall be provided on stairways with solid risers, and less than 1 1/4" tread.
8. Composite materials (stair stringer spacing will change)