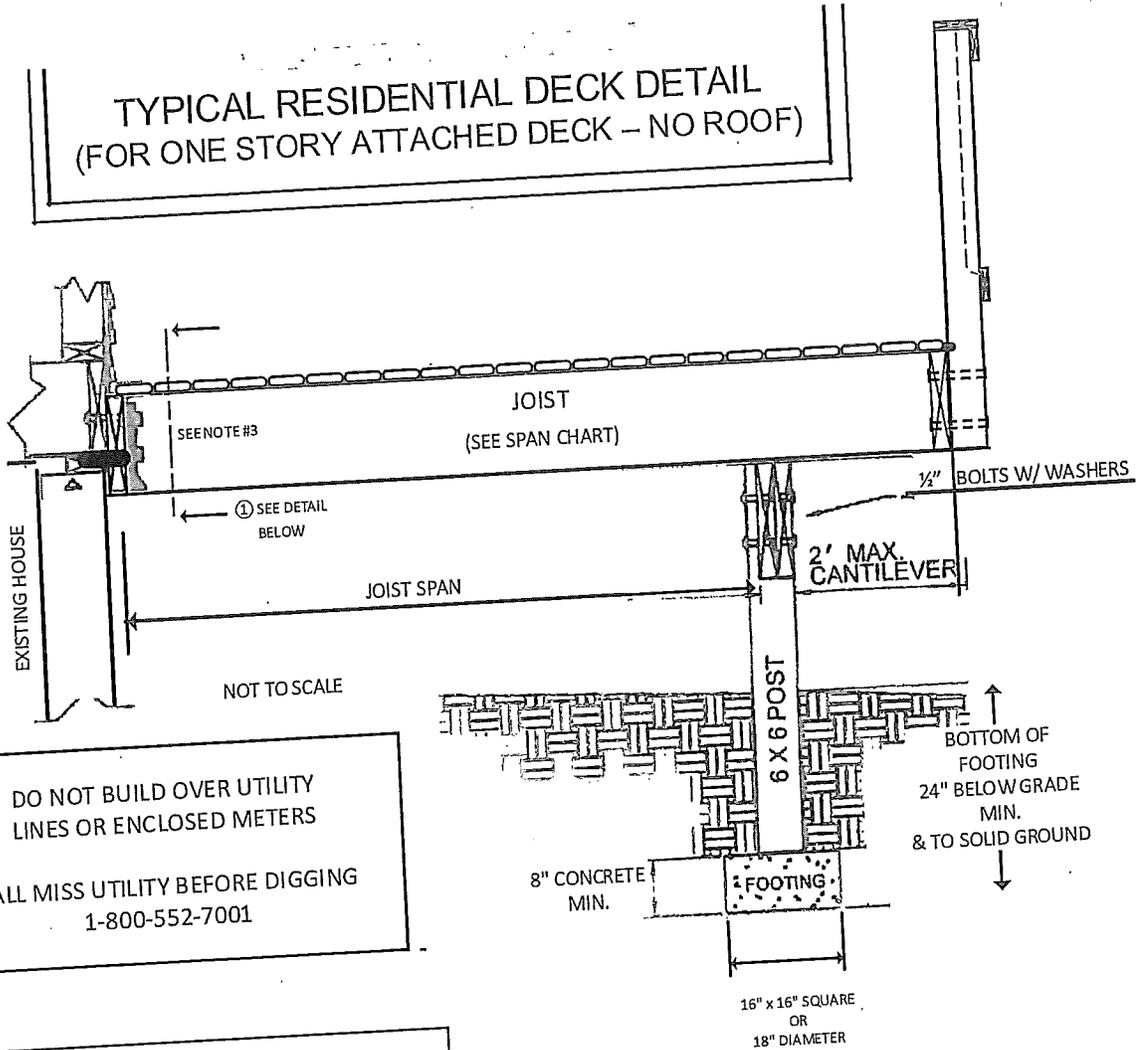
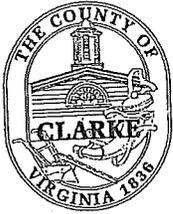
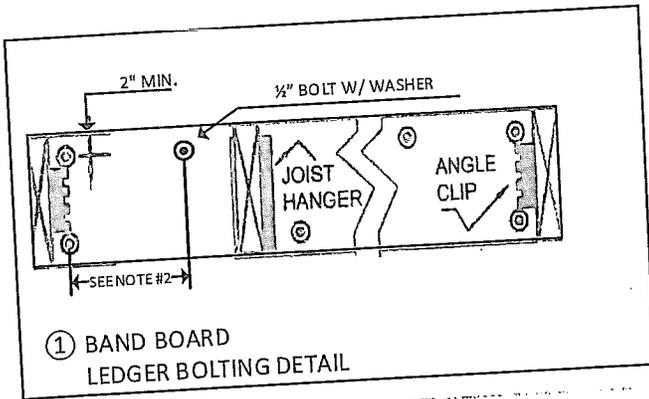


TYPICAL RESIDENTIAL DECK DETAIL (FOR ONE STORY ATTACHED DECK - NO ROOF)



DO NOT BUILD OVER UTILITY LINES OR ENCLOSED METERS
CALL MISS UTILITY BEFORE DIGGING
1-800-552-7001



- NOTES:**
1. CANTILEVER NOT TO EXCEED 1/4 OF JOIST SPAN WITH 2' MAX.
 2. 1/2" DIA. CARRIAGE OR LAG BOLTS 16" O.C.
 3. LEDGER ATTACHMENT TO HOUSE MUST BE FIELD INSPECTED FOR SOLID ATTACHMENT.
 4. THESE TYPICAL DETAILS SHALL NOT BE USED FOR DECKS SUPPORTING HOT TUBS, ROOFS, GAZEBOS, OR DECKS DETACHED FROM HOUSE.
 5. ALL FASTENERS & NAILS SHALL BE CORROSION RESISTANT.
 6. ILLUSTRATIVES NOT TO SCALE

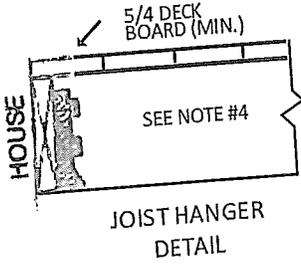
JOIST SPAN TABLE

Species	Joist	12" O.C.	16" O.C.	24" O.C.
Southern pine	2X6	9-11	9-0	7-7
	2X8	13-1	11-10	9-8
	2X10	16-2	14-0	11-5
	2X12	18-0	16-6	13-6
Douglas fir-larch, hem-fir, spruce-pine-fir	2X6	9-6	8-4	6-10
	2X8	12-6	11-1	9-1
	2X10	15-8	13-7	11-1
	2X12	18-0	15-9	12-10

FOR ADDITIONAL DETAIL - TABLE R507.5, 2012 VA CONSTRUCTION CODE

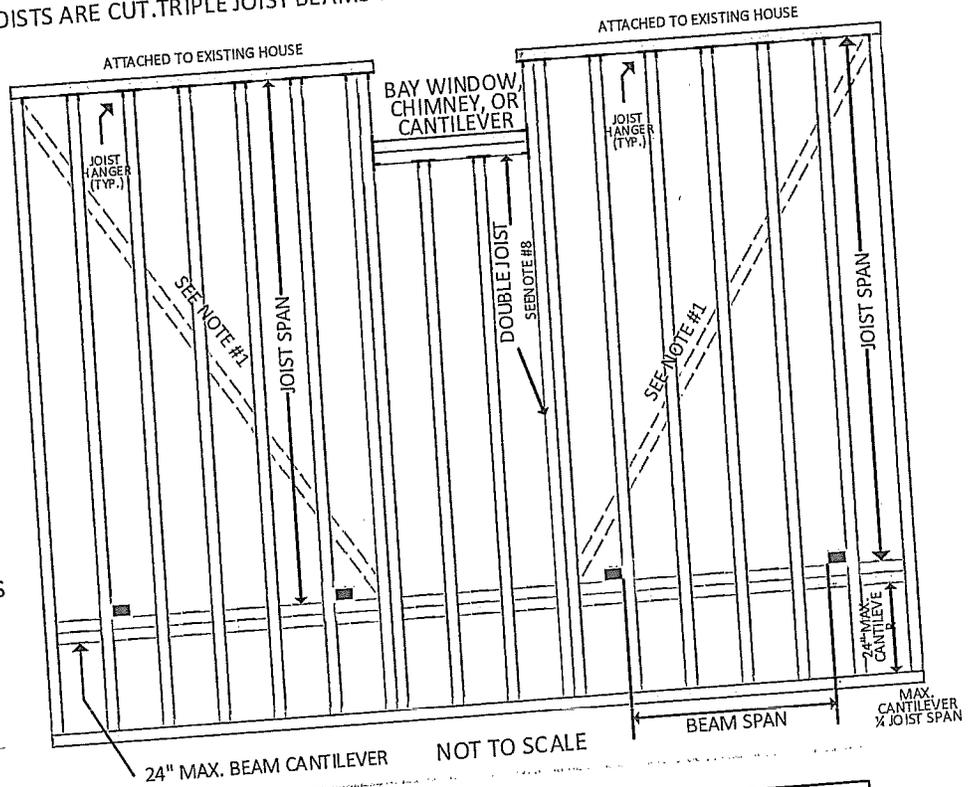
NOTES:

1. DIAGRAMS NOT TO SCALE
2. DIAGONAL BRACING REQUIRED UNDER JOISTS, MAY OMIT IF DECK BOARDS ARE INSTALLED DIAGONALLY
3. BAND BOARD ATTACHMENT TO CANTILEVERED FLOORS, BAY WINDOWS, CHIMNEYS OR BRICK VENEER NOT ALLOWED.
4. MAXIMUM BEAM CANTILEVER IS 24"
5. ONLY APPROVED FASTENERS CAN BE USED WITH JOIST HANGERS.
6. ALL BEAM SPLICES MUST BE OVER POSTS.
7. BEAMS MUST BE ATTACHED TO NOTCHED POSTS W/ (2)1/2" DIA BOLTS PER POST.
8. DECKS WHICH ARE LESS THAN 42" FROM GROUND LEVEL WILL REQUIRE A FRAMING INSPECTION PRIOR TO INSTALLING DECK FLOOR BOARDS.
9. DOUBLE JOIST BEAMS WHEN UP TO 3 JOISTS ARE CUT. TRIPLE JOIST BEAMS WHEN UP TO 5 JOISTS ARE CUT.



TO BE USED ONLY WITH DECKS ATTACHED TO EXISTING HOUSE.

USING THE "DECK BEAM SPAN TABLE"
 FIRST DETERMINE YOUR JOIST SPAN AS SHOWN ABOVE
 NEXT SELECT THE BEAM SIZE
 FOLLOW THE BEAM SIZE AND JOIST SPAN UNTIL THEY INTERSECT. THIS IS THE MAXIMUM SPACING YOU CAN HAVE BETWEEN POSTS.



DECK BEAM SPAN TABLE
 DECK JOIST SPAN (feet) LESS THAN OR EQUAL TO:

SPECIES	SIZE	DECK JOIST SPAN (feet) LESS THAN OR EQUAL TO:							
		6	8	10	12	14	16	18	
SOUTHERN PINE	2-2x6	6-11	5-11	5-4	4-10	4-6	4-3	4-0	
	2-2x8	8-9	7-7	6-9	6-2	5-9	5-4	5-0	
	2-2x10	10-4	9-0	8-0	7-4	6-9	6-4	6-0	
	2-2x12	12-2	10-7	9-5	8-7	8-0	7-6	7-0	
	3-2x6	8-2	7-5	6-8	6-1	5-8	5-3	5-0	
	3-2x8	10-10	9-6	8-6	7-9	7-2	6-8	6-4	
	3-2x10	13-0	11-3	10-0	9-2	8-6	7-11	7-6	
	3-2x12	15-3	13-3	11-10	10-9	10-0	9-4	8-10	
Douglas fir-larch, hem-fir, spruce-pine-fir, redwood, western cedars, ponderosa pine, red pine	3x6 or 2-2x6	5-5	4-8	4-2	3-10	4-6	4-1	3-8	
	3x8 or 2-2x8	6-10	5-11	5-4	4-10	5-6	5-1	4-8	
	3x10 or 2-2x10	8-4	7-3	6-6	5-11	6-4	5-11	5-7	
	3x12 or 2-2x12	9-8	8-5	7-6	6-10	6-4	5-11	5-7	
	4x6	6-5	5-6	4-11	4-6	4-2	3-11	3-8	
	4x8	8-5	7-3	6-6	5-11	5-6	5-2	4-10	
	4x10	9-11	8-7	7-8	7-0	6-6	6-1	5-8	
	4x12	11-5	9-11	8-10	8-1	7-6	7-0	6-7	
	3-2x6	7-4	6-8	6-0	5-6	5-1	4-9	4-6	
	3-2x8	9-8	8-6	7-7	6-11	6-5	6-0	5-8	
	3-2x10	12-0	10-5	9-4	8-6	7-10	7-4	6-11	
	3-2x12	13-11	12-1	10-9	9-10	9-1	8-6	8-1	

FOR ADDITIONAL DETAIL - TABLE R507.6, VA CONSTRUCTION CODE

USING HIDDEN DECKING FASTENERS

For decks with grip-type or side-mounted hidden fasteners for decking-to-joist connections and with any post height greater than 2.5 feet (measured from the top of the footing to the underside of the supporting beam), install 2x6 bracing to the underside of the deck joists per the requirements below.

- Bracing shall be installed at an angle between 45 and 60 degrees to the ledger/beam(s) above.
- Place bracing in a parallel pattern per FIGURE 2 or in a chevron pattern per FIGURE 3.
- Bracing shall be continuous with no splices.
- A bracing member shall be attached to all deck joists.
- Bracing shall span between the ledger board and next adjacent beam and between adjacent beams for multi-span or freestanding decks. Bracing is not required on cantilevers.
- Attach bracing to each intersecting joist with 2#8 x 3-inch screws or 2-12d nails.
- Per FIGURE 3, bracing shall not attach to the same joist at the point of the chevron.

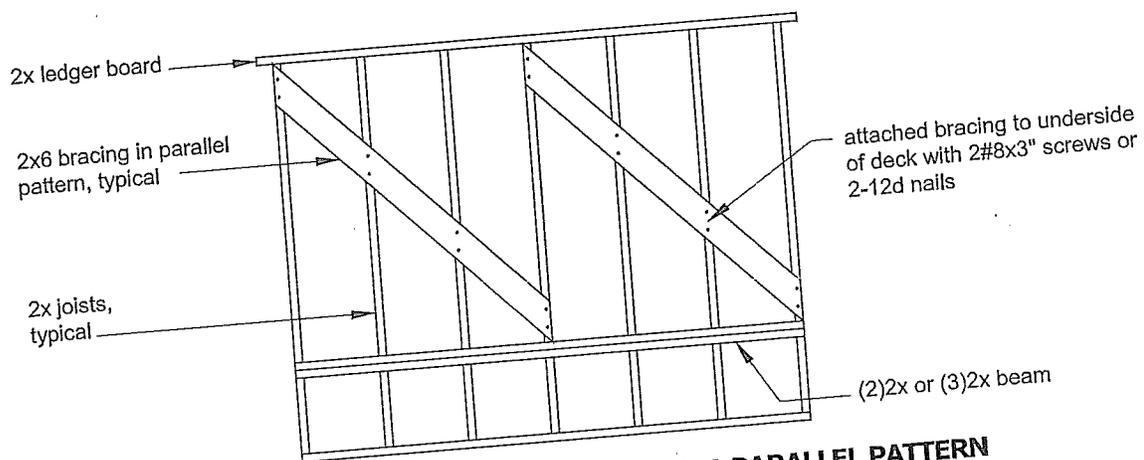


FIGURE 2: HORIZONTAL BRACING IN A PARALLEL PATTERN

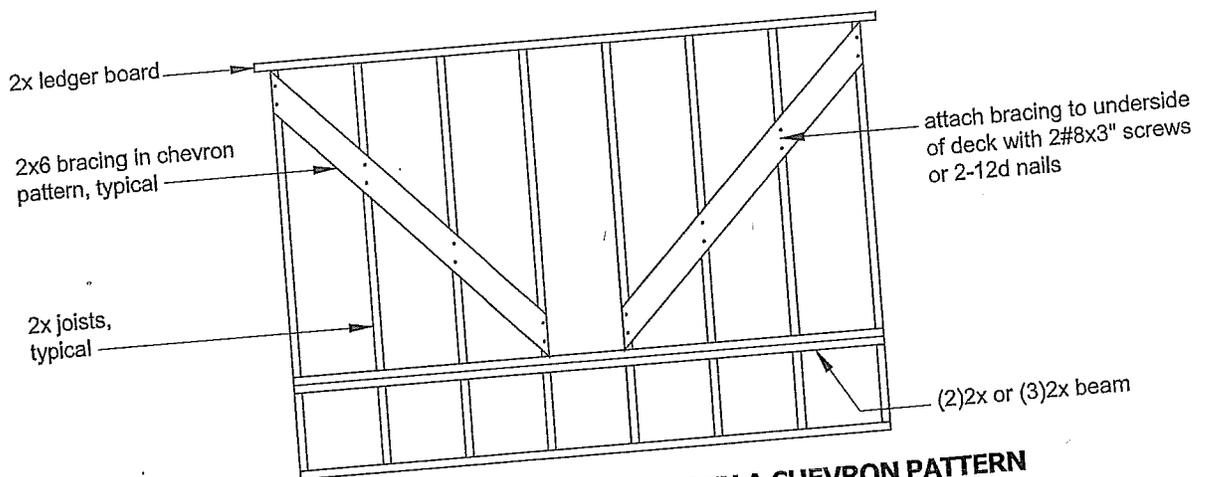


FIGURE 3: HORIZONTAL BRACING IN A CHEVRON PATTERN

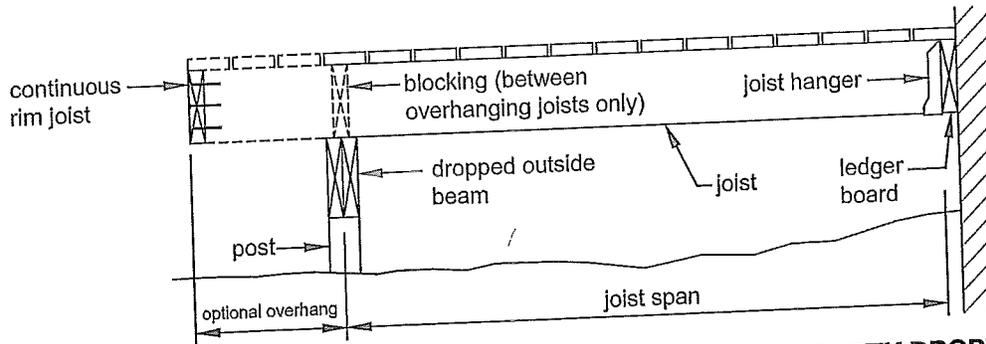


FIGURE 5: SINGLE SPAN DECK - JOISTS ATTACHED AT HOUSE WITH DROPPED BEAM

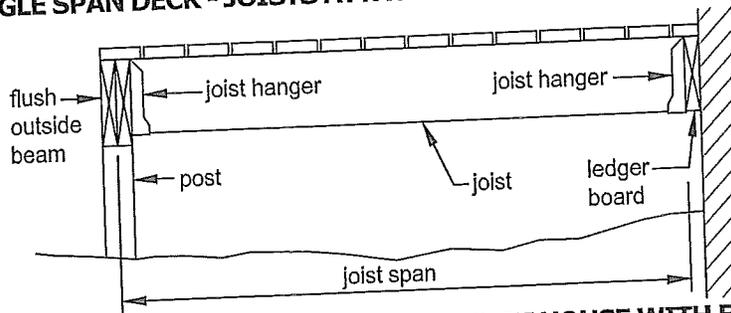
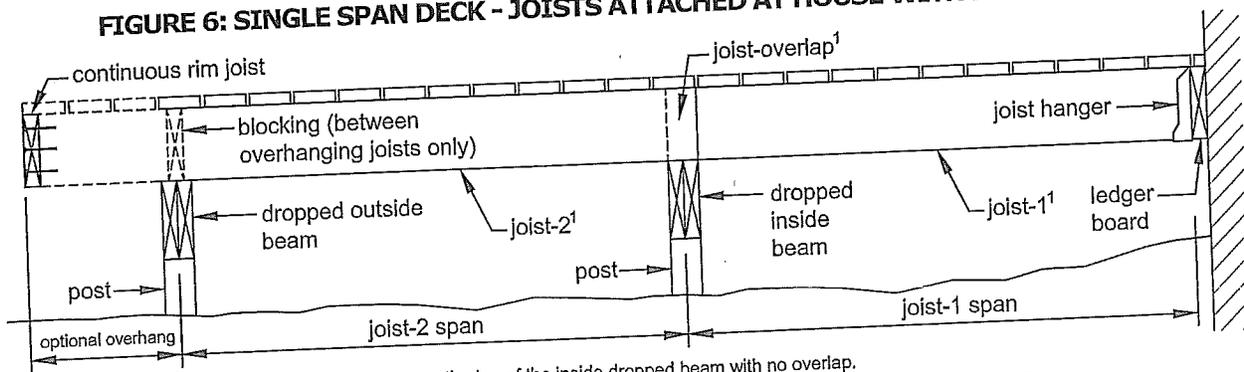


FIGURE 6: SINGLE SPAN DECK - JOISTS ATTACHED AT HOUSE WITH FLUSH BEAM



¹ One continuous joist is permitted to span over the top of the inside dropped beam with no overlap.

FIGURE 7: MULTI-SPAN DECK - JOISTS WITH DROPPED BEAMS

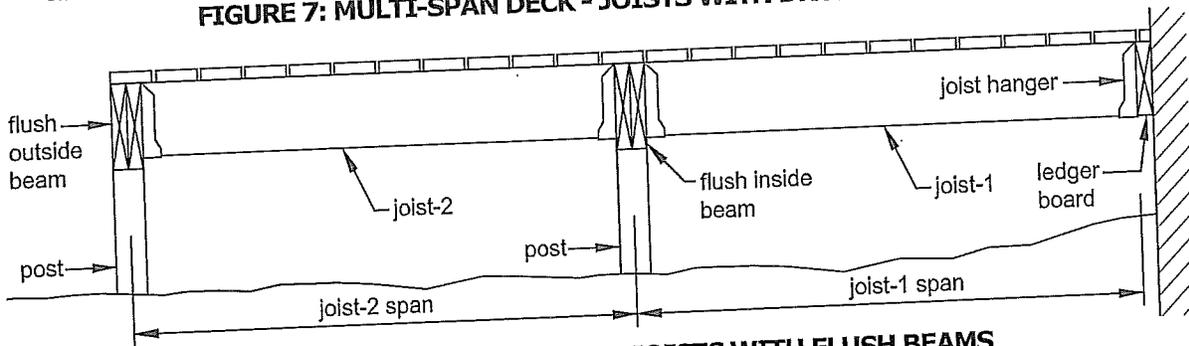
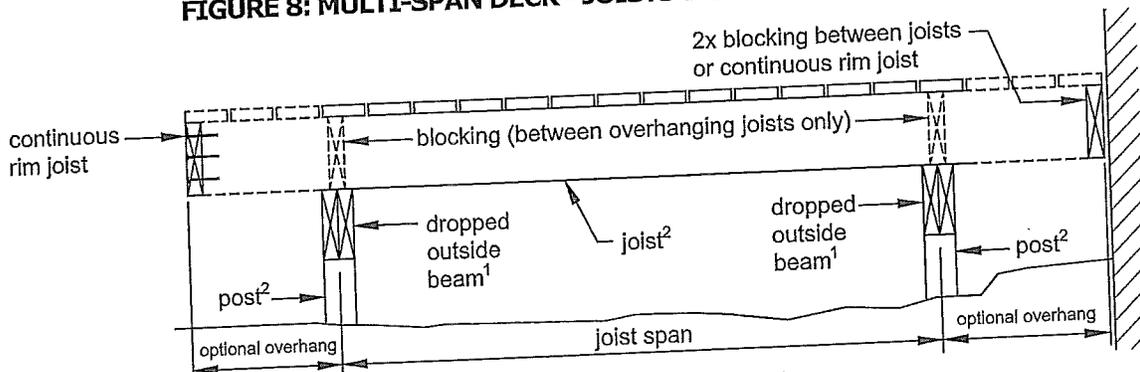


FIGURE 8: MULTI-SPAN DECK - JOISTS WITH FLUSH BEAMS



¹ Flush beams are permitted with freestanding decks when joists do not overhang.

² Align joists to be located at post locations in order to accommodate lateral bracing per FIGURE 31.

FIGURE 9: JOISTS WITH FREESTANDING DECKS

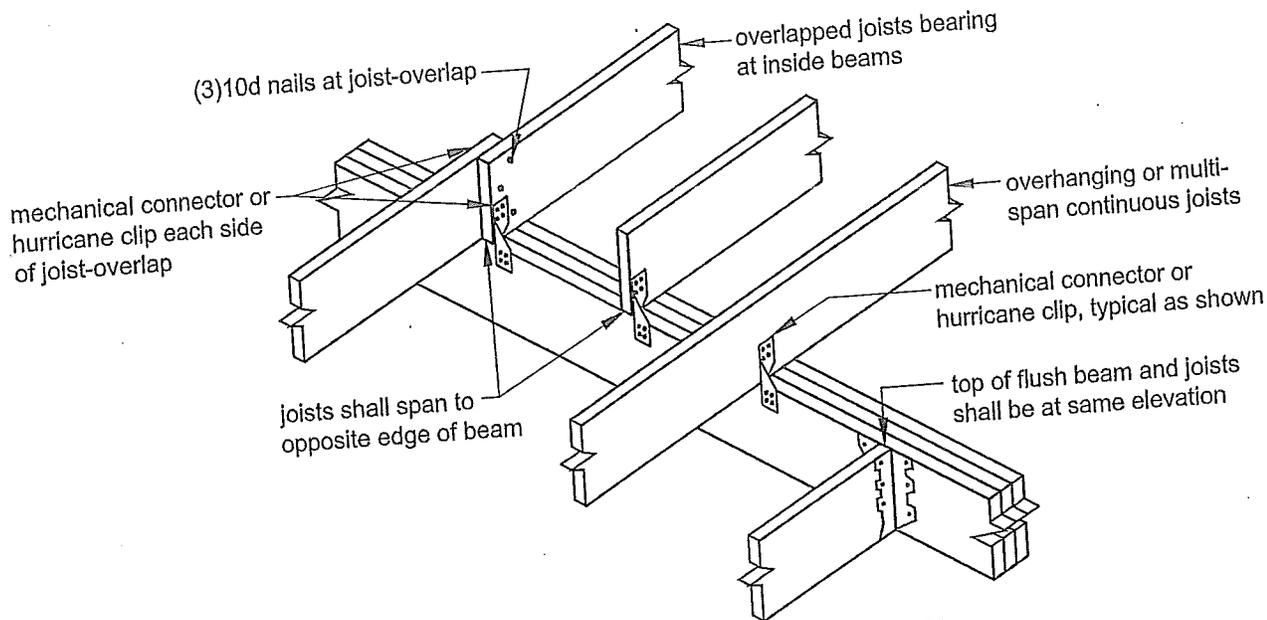


FIGURE 12: JOIST-TO-BEAM CONNECTION

- Beams are assembled, multi-ply framing members which span between supporting posts. Multi-span decks have more than one beam; spacing between beams is dependent on the allowable span lengths of the supported joists.
- Inside beams have joists bearing from each side. Outside beams have joists, with or without an overhang, bearing from one side.
- Dropped beams have joists bearing above; flush beams have joists with hangers bearing on its sides; see FIGURES 5 through 9 and FIGURE 13.
- Multi-span decks are permitted to mix flush and dropped beams.

BEAM SIZE

- Beam size is based on its influence width and longest span length per TABLE 3. Beam influence width, as shown in FIGURE 14, is based on supported joists' span lengths and overhang dimensions.
- Beam span length, as shown in FIGURE 13, is measured between the centerlines of two adjacent posts and does not include the beam overhangs.
- Beams may overhang past the center of the post up to one-fourth of the actual beam span.
- Flush beams shall have a depth greater than or equal to the deepest joist.

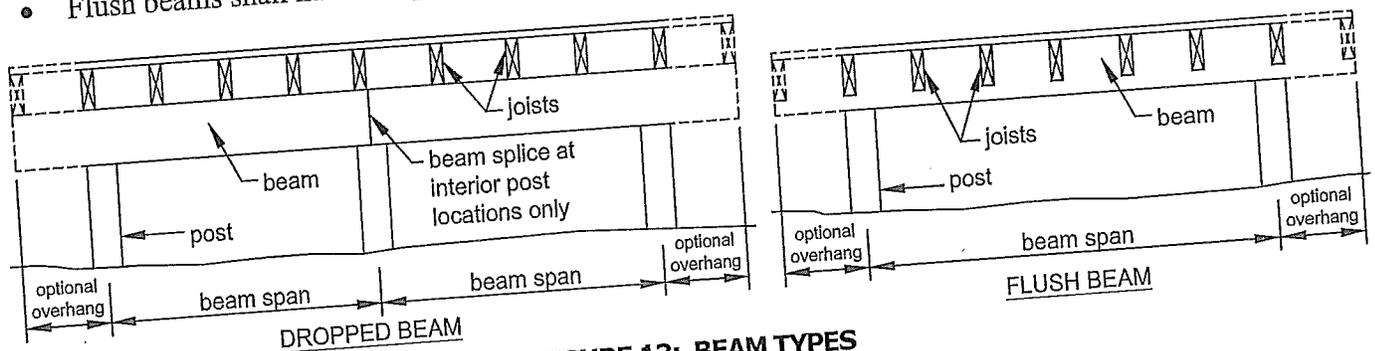


FIGURE 13: BEAM TYPES

Prohibited ledger attachments. The ledger board attachment conditions shown below are prohibited. In such cases, a free-standing deck or engineering design is required.

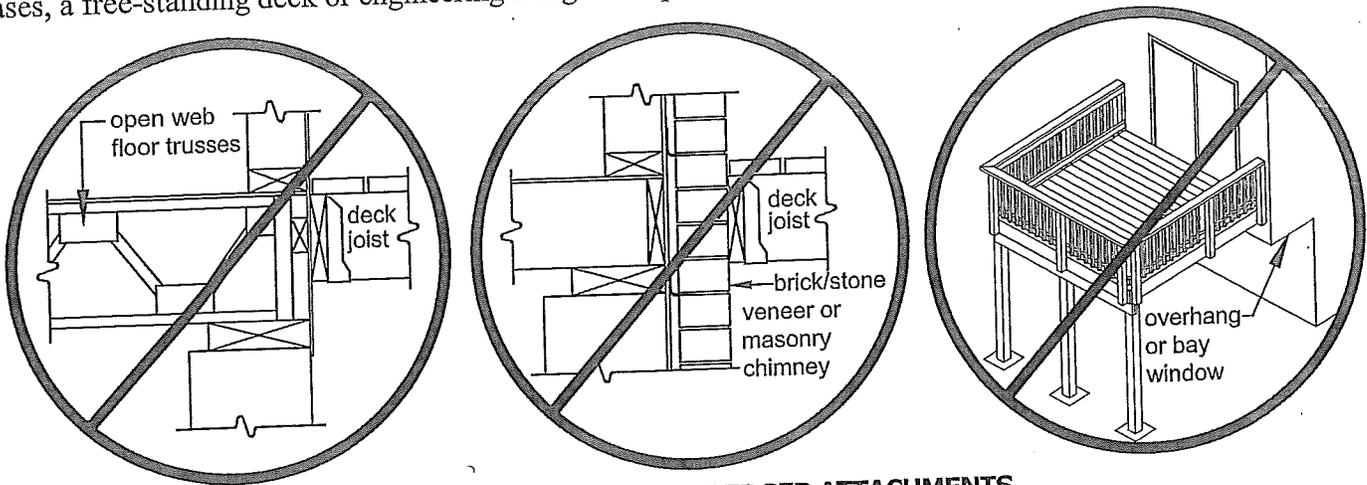


FIGURE 25: PROHIBITED LEDGER ATTACHMENTS

LEDGER BOARD FASTENERS

General requirements. Ledger board fasteners shall be installed in accordance with this section. Placement and spacing shall be in accordance with FIGURE 26 and TABLE 6. Only those fastener types noted herein are approved for use; lead anchors are prohibited. Adequacy of connections will be verified by county inspectors.

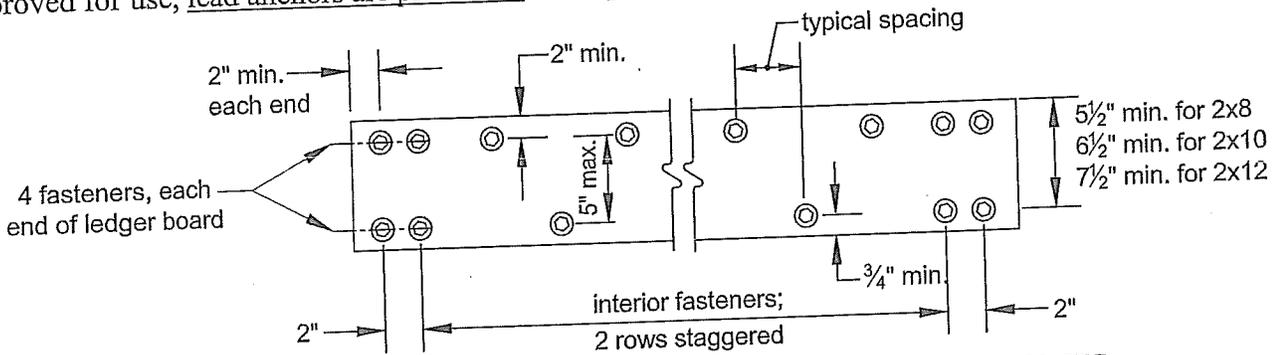


FIGURE 26: LEDGER BOARD FASTENER SPACING AND CLEARANCES

TABLE 6: LEDGER BOARD FASTENER SPACING, INCHES ON CENTER

Fastener	Band Board	Joist Span (feet), less than or equal to:						
		6	8	10	12	14	16	18
Lag Screws	EWP ¹	24	18	14	12	10	9	8
	2x lumber	30	23	18	15	13	11	10
Through-Bolts	EWP ¹	24	18	14	12	10	9	8
	2x lumber	36	36	34	29	24	21	19
SDS, LedgerLOK Wood Screws ²	EWP ¹	12	9	7	6	5	4	4
	2x lumber	13	10	8	6	5	5	4
SDWS, WS-EXT, WSWH-EXT Wood Screws ²	EWP ¹	14	10	8	7	6	5	5
	2x lumber	22	16	13	11	9	8	7
Expansion Anchors	—	36	36	34	29	24	21	19
Adhesive Anchors	—	32	32	32	24	24	16	16

¹ EWP = 1-inch minimum manufactured engineered wood product; see Page 14 for more information.

² Wood screws shall be permitted to be spaced in accordance with its current corresponding evaluation report if less restrictive than the values in TABLE 6.

Lateral Support

BRACING METHODS

All decks with post heights greater than 2.5 feet are required to be designed to resist lateral load caused by human activity and environmental forces. Use TABLE 9 to determine the applicable methods based on post height and deck type as defined in Section 3.

TABLE 9: LATERAL SUPPORT REQUIREMENTS

Post Height (feet) less than or equal to:	Single Span Decks	Multi-span Decks	Free-standing Decks
2.5	None required	None required	None required
11	<ul style="list-style-type: none"> • Method 1 or • Method 2 	<ul style="list-style-type: none"> • Method 2¹ 	<ul style="list-style-type: none"> • Method 2¹ and • Method 3
14	<ul style="list-style-type: none"> • Method 1 and • Method 2 	<ul style="list-style-type: none"> • Method 1 and • Method 2 	<ul style="list-style-type: none"> • Method 1, • Method 2 and • Method 3

¹ Method 2 may be omitted from the beam closest to the existing house wall if Method 1 is utilized at the house connection.

Method-1, Tension-ties (four total):

- Install one tension-tie at each end joist and install the remaining two to inside joists equally spaced along the width of the deck as shown in FIGURE 28. A set of tension-ties shall be installed for each structurally independent section of deck.
- Tension-ties shall be attached to the joists and exterior wall per the manufacturer's instructions with specified fasteners as shown in FIGURE 29. Fasteners shall penetrate a minimum of 3 inches into the sill plate or top plate of a wood framed wall.
- Approved tension-ties are listed in TABLE 10. The minimum capacity of each tension-tie shall be 750 pounds.
- Where attaching to a concrete or solid masonry wall, fasteners are permitted to be substituted with expansion anchors or adhesive anchors with a threaded rod as recommended by the tension-tie manufacturer. The withdrawal capacity of the anchors shall be a minimum of 750 pounds. The anchor shall be installed per its manufacturer recommendations.

TABLE 10: APPROVED TENSION-TIES

Manufacturer	Product
FastenMaster	LTS
Simpson Strong-Tie	DTT1
USP	LTS19
USP	ADTT-TZ

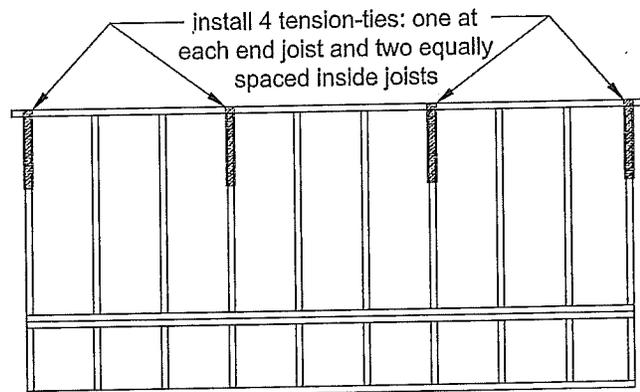
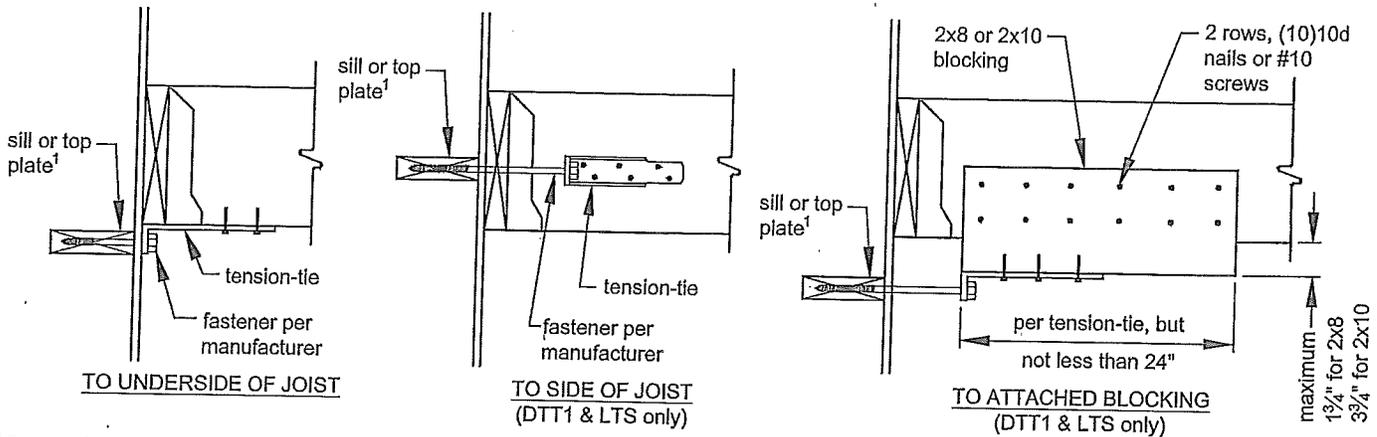


FIGURE 28: METHOD 1 - TENSION TIE LOCATIONS



¹ Tension-ties may be anchored to concrete or solid masonry walls with expansion or adhesive anchors as permitted on Page 18.

FIGURE 29: METHOD 1 - TENSION-TIE CONNECTION

Method-2, Knee-bracing at beam:

- Knee-bracing shall be comprised of 2x or 6x6 members.
- Decks shall have 2x knee-bracing installed at each post-beam location or 6x6 knee-bracing at end posts and both sides of every other interior post in accordance with FIGURE 30.
- Connections of knee-bracing shall be in accordance with FIGURE 32 or 33.

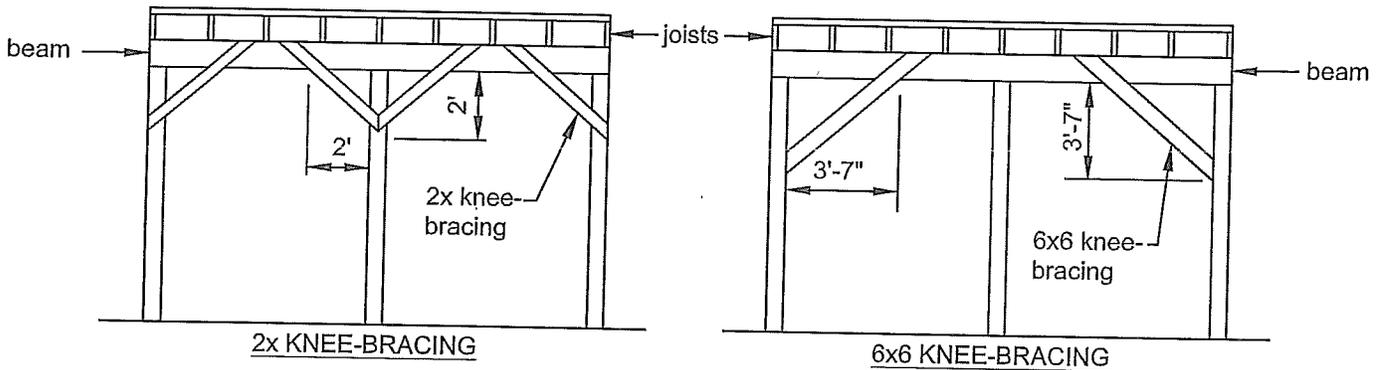


FIGURE 30: METHOD 2 - KNEE-BRACING AT BEAM-POST LOCATIONS

Method-3, Knee-bracing at joists-post locations (free-standing decks only):

- Knee-bracing shall be comprised of 2x or 6x6 members.
- Knee-bracing shall be installed at each post-joist location in accordance with FIGURE 31.
- Connections of knee-bracing shall be in accordance with FIGURE 32 or 33.

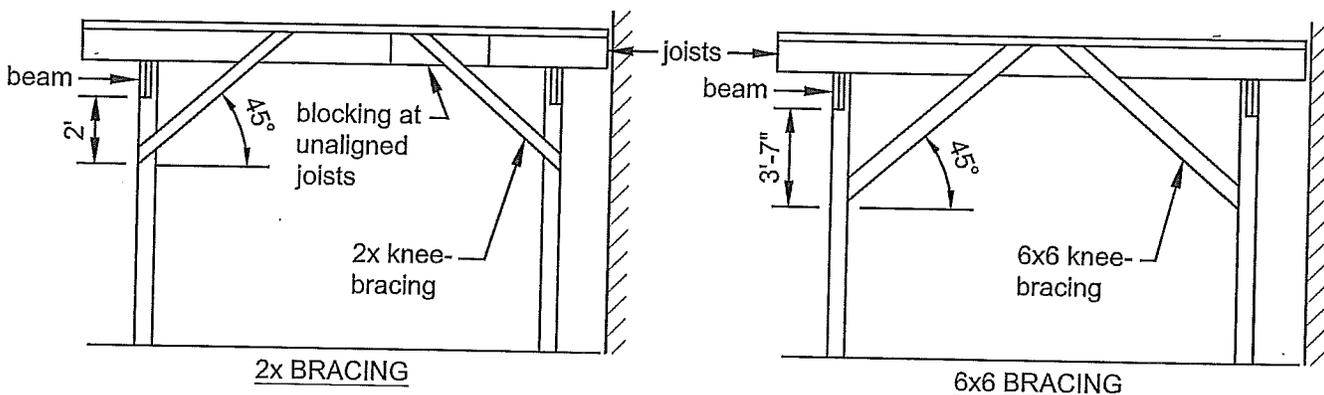
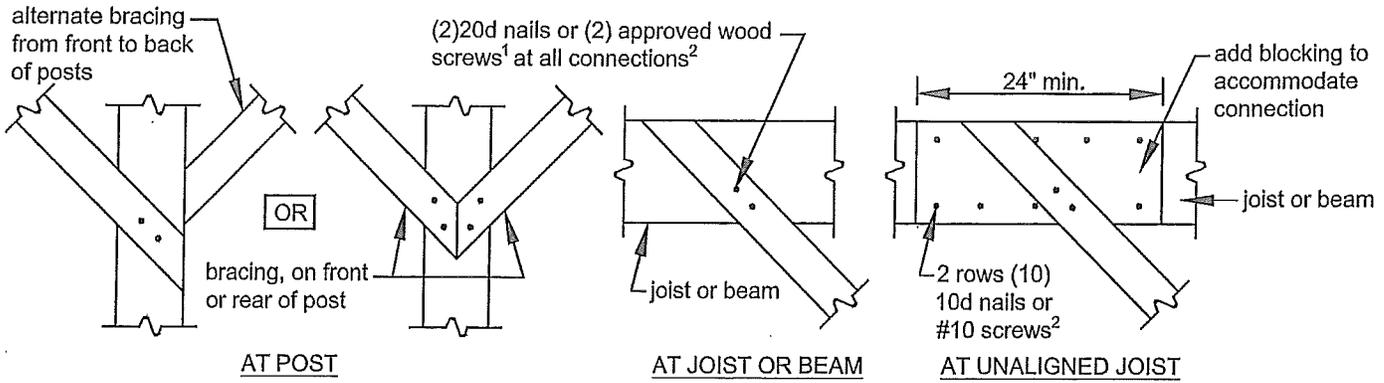


FIGURE 31: METHOD 3 - KNEE-BRACING AT JOIST-POST LOCATIONS

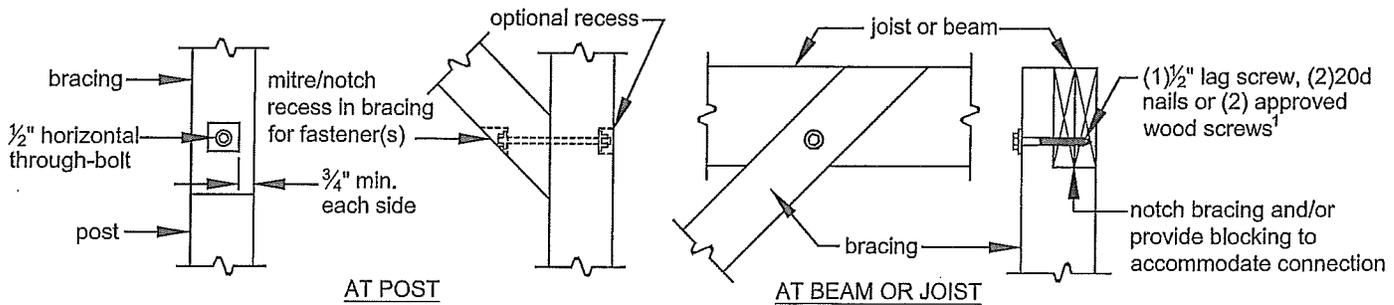
BRACING-TO-FRAMING CONNECTIONS



¹ Approved wood screws are listed in TABLE 8.

² Nails shall have a distance of $\frac{3}{8}$ inches to all edges and $\frac{3}{4}$ inches to ends of the bracing member.

FIGURE 32: TYPICAL CONNECTIONS OF 2x KNEE-BRACING



¹ Approved wood screws are listed in TABLE 8.

FIGURE 33: TYPICAL CONNECTIONS OF 6x6 KNEE-BRACING

Guards

GUARD CONSTRUCTION

A guard is required when a deck is greater than 30 inches above grade at a point 36 inches from the edge of the deck, as shown in FIGURE 34. Guards shall be constructed in accordance with the requirements herein; deviations are prohibited. Guards which are not required, but are nevertheless provided, must also comply with these requirements.

Plastic composites. Plastic composites of equal dimension and complying with the criteria noted on Page 3 may be substituted for the guard cap and infill elements shown in FIGURE 35 provided the manufacturer's performance criteria specifically permit such use.

Guard systems. Guard systems with a valid evaluation report from an accredited listing agency are permitted as referenced on Page 3. Pre-fabricated systems without an evaluation report will require a plan review during the permit application process.

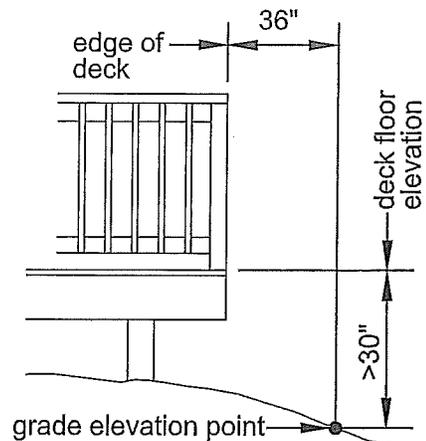
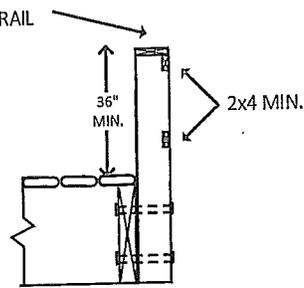
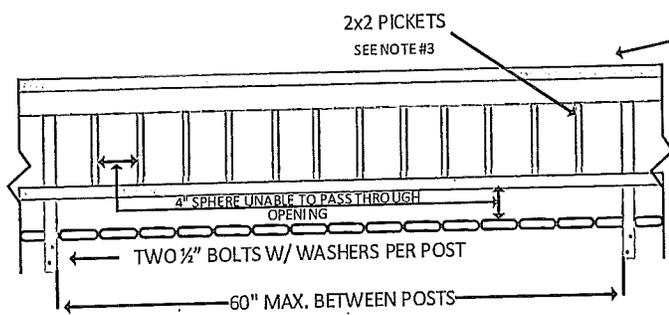
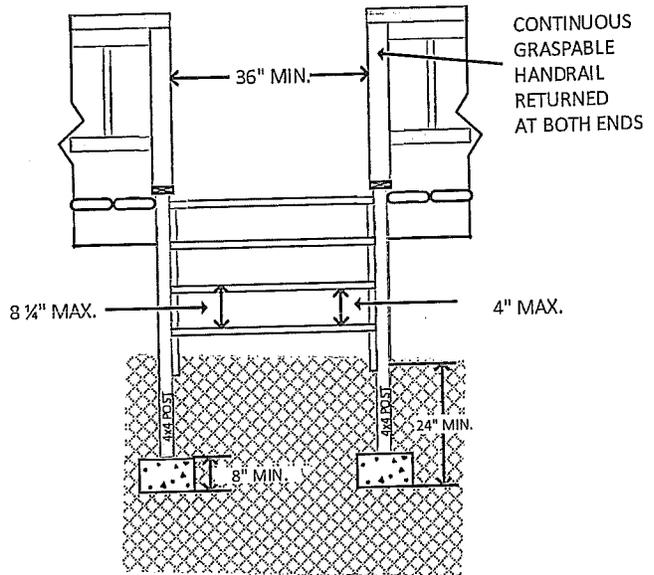
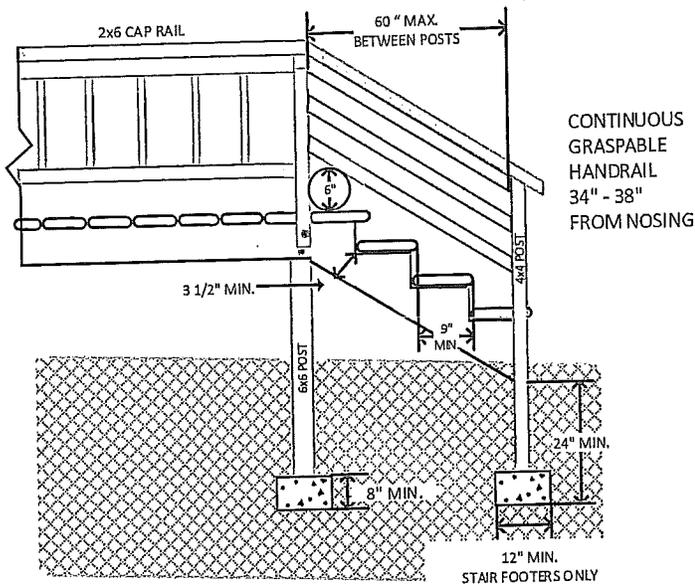


FIGURE 34: WHEN A GUARD IS REQUIRED



TOP RAIL SHALL WITHSTAND
200 lbs. CONCENTRATED LOAD



STAIR TREAD REQUIREMENTS:
2 STRINGERS – 2X TREAD MIN.
3 STRINGERS – 5/4 TREAD MIN.

NOTES:

1. GUARDRAILS ARE REQUIRED FOR DECKS AND PORCHES MORE THAN 30" ABOVE FINISHED GRADE. GUARD RAILS MUST BE EXTENDED 36" ABOVE DECK WALKING SURFACE AND 36" ABOVE FIXED BENCHES AND SEATS.
2. THE GREATEST RISER HEIGHT AND TREAD WIDTH SHALL NOT EXCEED THE SMALLEST BY MORE THAN 3/8".
3. SECURE PICKETS AT TOP & BOTIOM W/ 1- #8 CORROSION RESISTANT SCREWS OR 2-8d GALV NAILS OR 2- 2" GALV. STAPLES.
4. STAIRS WITH 4 OR MORE RISERS REQUIRE FROST FOOTINGS & GRASPABLE HANDRAILS. ALL STRINGERS REQUIRE SUPPORT.
5. GRASPABLE HANDRAILS TO BE CONTINUOUS THE FULL LENGTH OF THE STAIRS ENDS TO BE RETURNED TO POST.
6. ANY EXISTING VENTS OR UTILITIES LOCATED UNDER OR NEAR THE FOOTPRINT OF THE PURPOSED DECK MAY BE REQUIRED TO BE MOVED OR MODIFIED (MAY REQUIRE MECHANICAL PERMIT.)
7. COMPOSITE MATERIAL MUST BE INSTALLED PER MANUFACTURER SPECIFICATIONS AND INSTALLATION INSRUCTIONS.
8. MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS MUST BE ON SITE FOR ALL INSPECTIONS.
9. DIAGRAMS NOT TO SCALE