

CARROLL COUNTY BUREAU OF PERMITS AND INSPECTIONS

RESIDENTIAL CODE COMPLIANCE GUIDELINES FOR

DECKS

Code Reference: Chapter 97, Code of Public Local Laws and Ordinances of Carroll County and The International Residential Code as adopted

The following list of Code requirements is intended to assist you in complying with the Carroll County Building Code as adopted by Chapter 97, Code of Public Local Laws and Ordinances of Carroll County, but does not encompass the entire Code. Failure to comply with all applicable Code requirements will result in a Notice of Violation and/or Stop Work Order until such violations are corrected. The building permit and plans must be made available at the site for the required inspections. Should you have any questions regarding these requirements, please call 410-386-2674 or 1-888-302-8978.

NOTE: Please be aware that these guidelines are minimum requirements for inspection approval only.

GENERAL NOTES

- a. All lumber shall be southern pine, grade #2 or better and shall be pressure treated ACQ or CA-B in accordance with American Wood-Preservers' Association standards. All lumber in contact with the ground shall be rated as "ground-contact".
- b. Chemicals used in pressure treatment methods will prematurely corrode standard fasteners, hardware, and flashing when in contact with lumber. To combat corrosion, the following is required.
 - All screw and nails shall be hot-dipped galvanized or stainless steel.
 - All hardware (joist hangers, cast-in-place post anchors, etc.) shall be galvanized with 1.85 oz/sf of zinc (G-185 coating) or shall be stainless steel. Look for products such as "Zmax" from Simpson Strong-Tie or "Triple Zinc" from USP.
- c. Decks constructed according to this handout are not approved for future hot tub installations.
- d. Decks attached to an above ground pool shall also comply with the pool barrier guidelines.
- e. Contractor shall verify that existing house rim board is toe nailed to sill plate 6" on center at ledger location.
- f. **Inspections:**
 - A footing, framing, and final inspection is required on all decks.
 - Footing inspections are required PRIOR to the placement of concrete.
 - Framing and final inspection may be combined if all portions of the deck framing and mechanical attachments are at least 42" above grade.
 - Inspections are required by law. Failure to receive any and all inspections can result in the issuance of violations, which may lead to legal proceedings.

- g. It is the responsibility of the permit holder or the permit holder's representative to notify the county when the stages of construction are reached that require an inspection.

(1) FOOTERS

- a. Minimum depth finished grade to bottom of all footings – 30” or extended to solid bearing which ever is greater.
- b. Size – must be 8” thick minimum, 12” minimum diameter for a 4x4 post and 14” diameter minimum for a 6x6 post.

(2) LEDGER

- a. Ledger of same size of joist or larger is to be bolted to house using lag or carriage bolts with washers.
- b. Bolt or Lag size shall be ½” diameter with washers and have a maximum spacing of 16” oc up to 12’ joist span, 10” oc over 12’. **See figure 6**
- c. For other approved attachment such as LedgerLok: Fastener shall be 7” oc staggered up to 12’ joist span, 5” oc over 12’.
- d. Floor joist attached to ledger with joist hangers.
- e. Ledger shall not be connected to house overhang/cantilever or brick veneer for structural purposes. Deck shall be free standing. **See figures 4 and 5**
- f. **Siding and flashing:** house siding, or the exterior finish system, must be removed prior to the installation of the ledger board. Flashing is required at any ledger board connection to a wall of wood framed construction and shall be composed of copper (attached using copper nails), stainless steel, UV resistant plastic or galvanized steel coated with 1/85 oz/sf of zinc (G-185 coating). **See Figure 1**

(3) POST

- a. All post/columns are to be a minimum of 4x4's or equivalent for heights up to 8 feet, and 6x6's or equivalent for heights over 8 feet.
- b. Post in ground resting on footers, or secured to concrete above grade.
- c. Diagonal bracing is required when deck is free standing. **See figure 2**
- d. See “Beam Size and Maximum Space Between posts for Beams”.

(4) BEAMS

- a. Post and beam secured to each other by the following methods:
 - 4x4 – use column/post cap. **See figure 11**
 - 6x6 – notched post and secure beam to post with 2 - ½” diameter bolts. **See figure 9****Attachment of the beam to the side of the post is prohibited. See figure 10**

- b. Beam Cantilever: 2x6 prohibited, 2x8 – 2’ maximum, 2x10 - 2’ maximum.
- c. All beam splices shall be located over top of load bearing posts. Splices between posts are prohibited.
- d. Headers/beams shall be fastened at 16” on center along each edge with 16d nails.
- e. See Deck Beam Span Charts for beam size and spacing.

(5) FLOOR JOIST

- a. See attached maximum span table for treated lumber, southern yellow pine, 40 psf live load, 10 psf dead load and deflection of L/360 minimum.
- b. Floor joist attached to ledger board or band board/beam with joist hangers.
- c. Maximum cantilever/overhang 2x6 prohibited, 2x8 2’ maximum, 2x10 and 2x12 (16” OC) 3’ maximum.
- d. Cantilevered floor joists shall extend back towards the building at least three times the length of the cantilevered section.

(6) DECKING BOARD SPANS

Traditionally, 2X4, and 2X6 structural lumber has been used for decking boards. Although these lumber sizes are still used for decking, 5/4” radius edge deck (RED) and composites are becoming more popular. In any case, the use of decking boards wider than 6 inches is not recommended because of “cup”, a form of warp that can become a problem. Allowable spans for 2X4, 2X6, and radius edge (5/4”) and composite decking are given in table 7A. *Reduce the allowable decking spans if the decking is applied diagonally by installing the floor joist closer together, e.g.; 24” to 16” oc, 16” to 12” oc. SEE TABLE 7A

SPECIES	NOMINAL DECK SIZE	MAXIMUM JOIST SPACING
Douglas Fir, Southern Pine, Hem-Fir, SPF,	5/4”	16”
SPF (South) Ponderosa Pine, Redwood,	2x4	24”
Western Cedar	2x6	24”

TABLE 7-A

NOTE: The allowable spans if the decking is applied diagonally by installing the floor joists closer together, e.g.; 24” to 16” oc, 16” to 12” oc.

(7) STAIRWAYS

- a. Minimum 3 feet net clear width. See figure 7
- b. Maximum riser 7 ¾ ”.
- c. Minimum tread 10” nose to nose.

- d. Riser and tread shall be consistent to within a tolerance of 3/8" through out any given stairway.
- e. Risers shall not permit passage of a 4" sphere.
- f. Stairs shall be solidly attached to the main deck or stair landing. The plumb cut for the stair stringers or stair carriages shall be solidly attached for the entire height of the cut.
- g. The maximum allowable spacing of stair stringers or stair carriages shall be determined by the maximum allowable span of the tread material or decking used. See section #6 of this guideline. NOTE: Three 2 X 12 stringers or carriages minimum required for the standard 3' wide stairway. **See figure 12**

(8) HANDRAILS

- a. Handrails 34" – 38" above nosing of 4 or more risers.
- b. Continuous the full length of stairs and shall meet the requirements of **figures 7 and 8.**

(9) GUARDRAILS

- a. Guardrails for porches, decks, balconies, or raised floor surfaces more than 30" above floor or grade shall be not less than 36" high.
- b. Open sides of stairs with total rise of more than 30" above floor or grade shall have guardrails not less than 34" high measured vertically from nose of tread.
- c. Horizontal spacing between vertical members in required guardrails shall be a maximum of 4".
- d. Triangular openings formed by riser, tread, and bottom rail of guardrails on stairways shall not allow a sphere 6" in diameter to pass through.
- e. For recommended guard post attachment **see figure 3.**

***ALLOWABLE JOIST SPANS**

International Residential Code
 Southern Yellow Pine – Exterior – Treated Lumber
 Joist Spans

Deck – an exterior floor system supported on at least two opposing sides by an adjoining structure and/or post, piers, or other independent supports.

Live Load: 40 lbs./SF
 Dead Load: 10 lbs./SF
 Deflection: L/360

Size In Inches	Spacing In Inches	No. 2	
		No. 1	No. 2
2x6	12"	10-7	10-4
	16"	9-7	9-5
	24"	8-5	7-10
2x8	12"	13-11	13-8
	16"	12-8	12-5
	24"	11-1	10-2
2x10	12"	17-9	17-5
	16"	16-2	15-10
	24"	13-5	13-1
2x12	12"	21-7	21-2
	16"	19-8	18-10
	24"	16-1	15-5

*SPANS ARE ROUNDED TO THE NEAREST INCH

BEAM SIZE AND MAXIMUM SPACE BETWEEN POSTS FOR BEAMS

CHART A/NO JOIST CANTILEVER

MAXIMUM ALLOWABLE SPACING BETWEEN POSTS

Joist Span Distance from House to Beam or Header	MAXIMUM ALLOWABLE SPACING BETWEEN POSTS			
	2-2"x6" Beam	2-2"x8" Beam	2-2"x10" Beam	2-2"x12" Beam
6'	Up to 9'0"	Up to 11'6"	Up to 15'0"	Up to 16'0"
7'	Up to 8'0"	Up to 10'6"	Up to 14'0"	Up to 15'6"
8'	Up to 7'6"	Up to 10'0"	Up to 13'0"	Up to 15'0"
9'	Up to 7'0"	Up to 9'6"	Up to 12'0"	Up to 14'0"
10'	Up to 6'6"	Up to 9'0"	Up to 11'6"	Up to 13'6"
11'	Up to 6'3"	Up to 8'6"	Up to 11'0"	Up to 13'0"
12'	Up to 6'0"	Up to 8'0"	Up to 10'6"	Up to 12'6"
13'	Up to 5'9"	Up to 7'9"	Up to 10'0"	Up to 12'0"
14'	Up to 5'6"	Up to 7'6"	Up to 9'6"	Up to 11'6"
15'	Up to 5'6"	Up to 7'3"	Up to 9'3"	Up to 11'0"
16'	Up to 5'3"	Up to 7'0"	Up to 9'0"	Up to 10'6"

CHART B WITH 2' FLOOR JOIST CANTILEVER

MAXIMUM ALLOWABLE SPACING BETWEEN POSTS

Joist Span Distance from House to Beam or Header	MAXIMUM ALLOWABLE SPACING BETWEEN POSTS		
	2-2"x8" Beam	2-2"x10" Beam	2-2"x12" Beam
6'	Up to 9'0"	Up to 11'6"	Up to 13'6"
7'	Up to 8'6"	Up to 11'0"	Up to 13'0"
8'	Up to 8'0"	Up to 10'6"	Up to 12'6"
9'	Up to 7'9"	Up to 10'0"	Up to 12'0"
10'	Up to 7'6"	Up to 9'6"	Up to 11'6"
11'	Up to 7'3"	Up to 9'3"	Up to 11'0"
12'	Up to 7'0"	Up to 9'0"	Up to 10'6"
13'	Up to 6'9"	Up to 8'9"	Up to 10'3"
14'	Up to 6'6"	Up to 8'6"	Up to 10'0"
15'	Up to 6'3"	Up to 8'3"	Up to 9'9"
16'	Up to 6'0"	Up to 8'0"	Up to 9'6"

CHART C WITH 3' FLOOR JOIST CANTILEVER

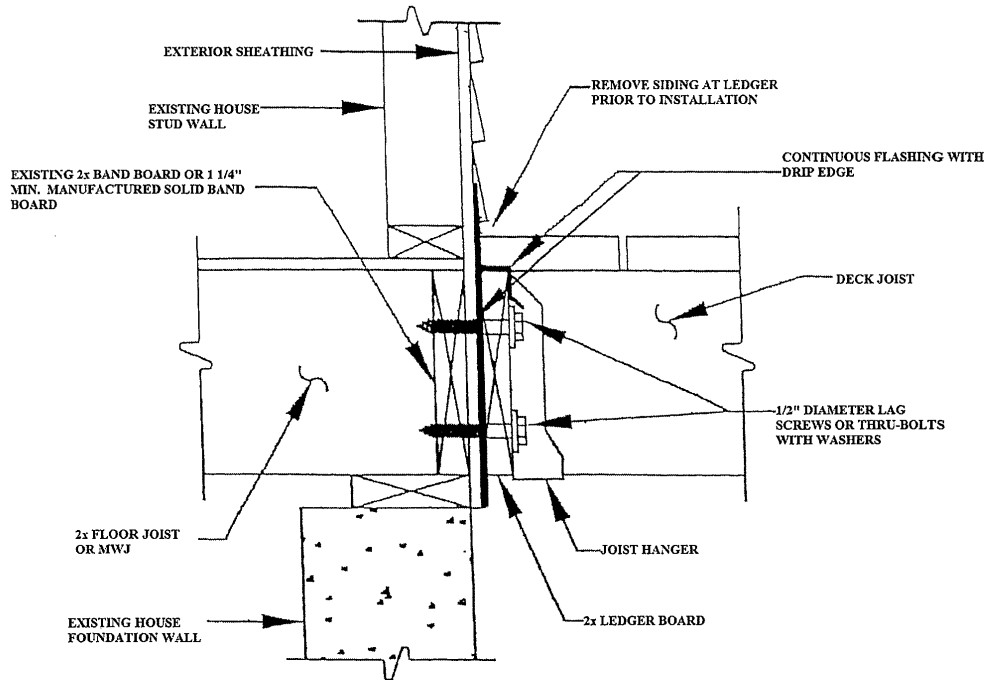
(NOTE: FLOOR JOIST MUST BE 2X10, 16 O.C. OR BETTER TO USE CHART C)

MAXIMUM ALLOWABLE SPACING BETWEEN POSTS

Joist Span Distance from House to Beam or Header	MAXIMUM ALLOWABLE SPACING BETWEEN POSTS	
	2-2"x10" Beam	2-2"x12" Beam
9'	Up to 9'6"	Up to 11'0"
10'	Up to 9'0"	Up to 10'6"
11'	Up to 8'9"	Up to 10'3"
12'	Up to 8'6"	Up to 10'0"
13'	Up to 8'3"	Up to 9'9"
14'	Up to 8'0"	Up to 9'6"
15'	Up to 7'9"	Up to 9'3"
16'	Up to 7'6"	Up to 9'0"

DECK FLASHING DETAIL

FIGURE 1



LATERAL SUPPORT OF FREE-STANDING DECKS

Free standing decks greater than 2 feet above grade shall resist lateral loading and horizontal movement by providing diagonal bracing or by attaching to the exterior wall of the house.

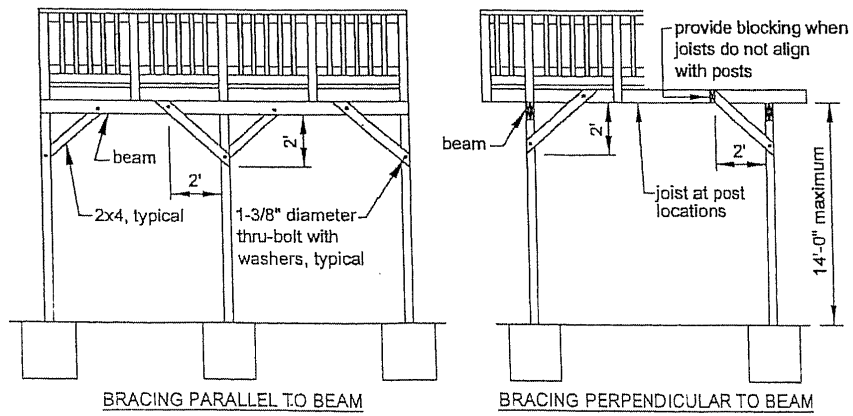
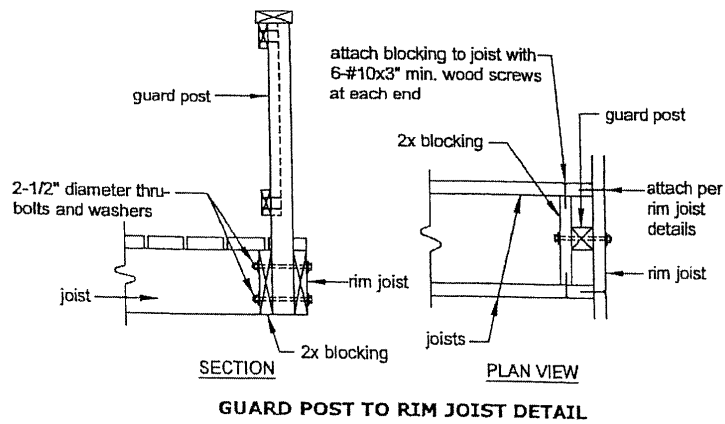
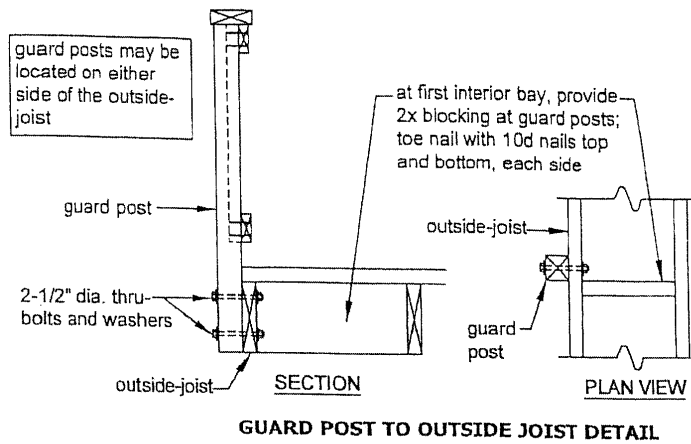


FIGURE 2 : DIAGONAL BRACING REQUIREMENTS

GUARD POST ATTACHMENTS

FIGURE 3

GUARD POST TO OUTSIDE-JOIST:



PROHIBITED LEDGER ATTACHMENTS

Attachments to exterior veneers (brick, masonry, stone) and to cantilevered floor overhangs or bay windows are prohibited (see Figures 17 and 18). In such cases the

deck shall be free-standing (see FREE-STANDING DECKS).

Figure 4: No attachment to or Through Exterior Veneers (Brick, Masonry, Stone)

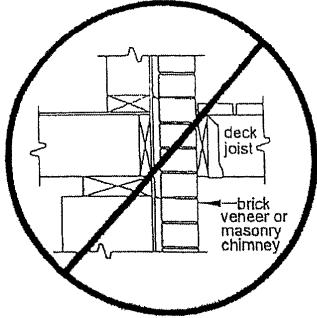


Figure 5: No Attachment to House Overhang

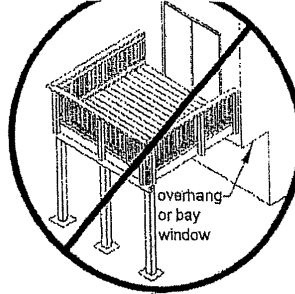


Figure 6: Ledger Board Fastener Spacing and Clearances

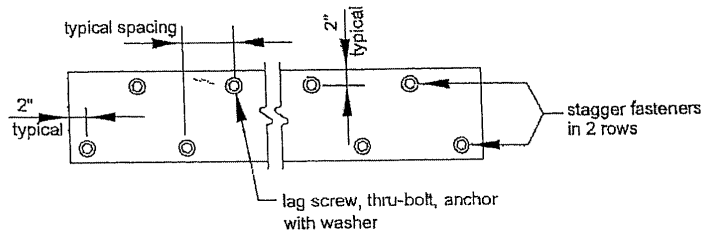


Figure 7: Miscellaneous stair requirements

Handrail requirements

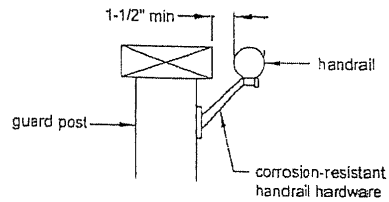
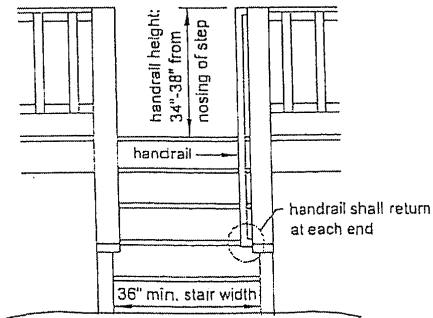
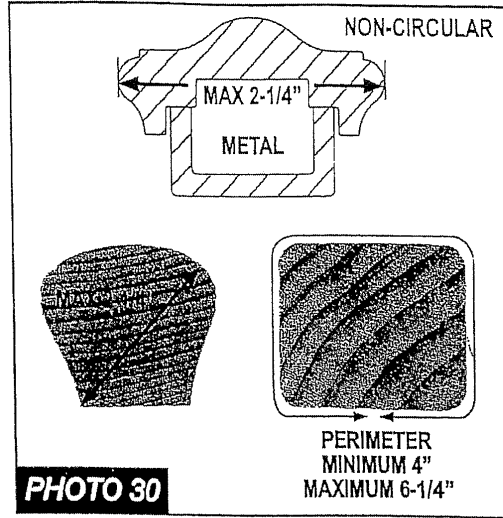
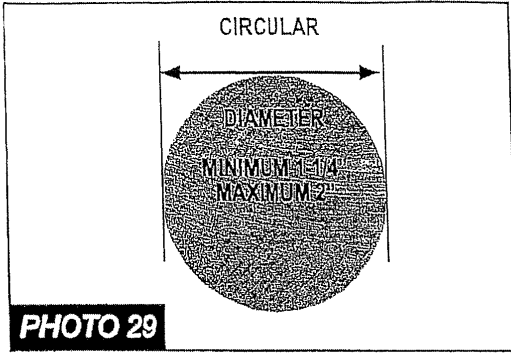


Figure 8: Handrail Grip Sizes (Type 1)

1. Type I. Handrails with a circular cross section shall have an outside diameter of at least 1 1/4 inches (32 mm) and not greater than 2 inches (51 mm). PHOTO 29. If the handrail is not circular it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) with a maximum cross section of dimension of 2 1/4 inches (57 mm). PHOTO 30.



Detail for Framing Around a Chimney or Bay Window

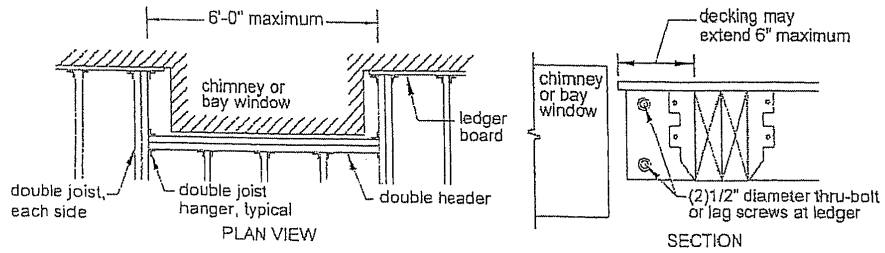


Figure 9: Post to Beam Attachment Requirements

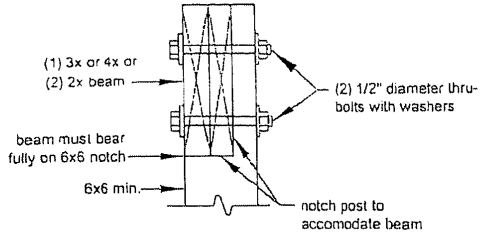


Figure 10: Prohibited Post to Beam Attachment Condition

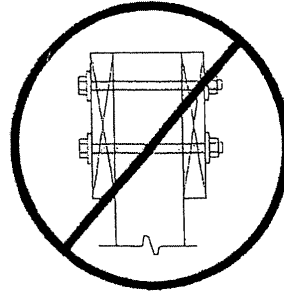


Figure 11: Alternate Approved Post to Beam Column Cap Attachment

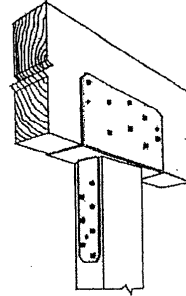


Figure 12: Stair stringer Requirements

