

DECK INFORMATION GUIDE

FREDERICK COUNTY DEPARTMENT OF PERMITS AND INSPECTIONS
30 NORTH MARKET STREET FREDERICK, MD 21701 (301) 600-1086
(This guideline assumes all lumber to be preservative-treated Southern Pine.)

- 1. GENERAL:**
 - Deck structures shall be designed for a minimum 40 lb. per sq. ft. live load.
 - All wood should be preservative-treated or an approved alternative.
 - Fasteners and connectors for preservative-treated wood shall be of hot dipped, zinc-coated galvanized steel, stainless steel, silicon bronze or copper.
 - Any alternate decking, guard, and/or handrail material used **must be approved by Frederick County.**

- 2. PLANS:**
 - 2 sets of plans with dimensions shown are required. Framing plans need to clearly show each level. **Computerized plans from Home Centers/Lumber Yards with separate material list will not be accepted unless the framing plans have the structural elements clearly labeled on the drawings themselves.**

- 3. FOOTINGS:**
 - Poured concrete footings should be a minimum of 8" wider than the posts (4x4 post - 12" min. width, 6x6 post - 14" min. width). Larger footings may be required with certain load conditions.
 - The bottom of footings must be a minimum of 30" below finish grade level.
 - Footings must be a min. of 8" thick poured concrete below bottom of post. No gravel beneath footings.
 - Suggest footings be placed at least 36" away from the house foundation to avoid the backfill area.

- 4. POSTS:**
 - Post can be set directly on the footing with tamped back-fill – min. 12", enclosed in concrete below grade- min. 12", or on top of a pier at grade with an approved post anchor.
 - Posts should be a minimum 4x4 lumber size at max. 8' height, 4x6 at max. 8' and 6x6 at max. 14'.
 - For posts over 10'-0" tall cross bracing is recommended.

- 5. LEDGERS:**
 - Ledgers should be the same size lumber as the joists or larger (min. 2 x 8) and shall be properly bolted to **solid structural material** of the house (not sheathing). See '**Ledger Fastener Table**'.
 - Acceptable ledger fasteners are: lag screw with washer, square/hex headed through-bolt with nut & washers and Ledger-Lok fasteners or similar approved products.
 - Decks or a portion thereof are required to be self-supporting when attaching to an existing house cantilever. Also, if the house band board cannot be verified as structurally adequate, then the deck must be freestanding.

- 6. BEAMS:**
 - Beams must be securely connected to the posts and joists with hardware and appropriate fasteners.
 - For maximum beam span between posts see '**Deck Beam Span Lengths Table**'.
 - Note: Certain framing conditions may change those allowable spans.**

- 7. JOISTS:**
 - For max. joist spans see '**Joist Span Table**'.
 - Joists can be set in hangers on the face of the beam or cantilevered over the top of the beam.
 - A min. of 4 fasteners are required for lateral load connections; for example Simpson Strong-Tie DTT1Z. For alternative use 2 Simpson Strong-Tie DTT2Z or similar. Install per manufacturers requirements.
 - Deck joists shall be permitted to cantilever not greater than one-fourth of the actual joist span.
 - For best strength the max. joist cantilever distance should not exceed: (16" o.c. assumed spacing)

2 x 8's: 2'

2 x 10's: 3'

2 x 12's: 4'

- 8. DECKING:**
- Wood decking requires a min. of 2 fasteners into each supporting member (i.e. joist).
 - When using different size/thickness of lumber or composite material follow the manufacturer's recommendations.
 - Suggestion: To strengthen the deck structure, the decking may be set at 45 degree angle across the joists. (Joists may require closer spacing.)
- 9. RAILS:**
- Guards on decks shall be a minimum of 36" in height above the deck surface and are **required** on decks over 30" above grade or level below. Railing systems shall be able to resist a concentrated load of 200 lbs. on or against the top rail at any point and direction.
 - Guard in-fill components shall be designed to withstand a horizontally applied normal load of 50 lbs. per sq. ft.
 - Guards on stairs must be 34" minimum vertically above the tread nosing if the stairs are 30" above grade.
 - Balusters/pickets shall have no more than a 4" space between them on level surfaces and no more than 4 3/8" space along the run of stairs.
 - The triangular openings at the open side of stair shall not allow passage of a sphere 6 inches in diameter.
 - Continuous graspable handrails on stairs shall be between 34" and 38" above the tread nosing (measured vertically) and are **required** on stairs with 4 or more risers. The handgrip portion shall have a circular cross section of 1 1/4" minimum to 2" maximum.
- 10. STAIRS & RAMPS:**
- Stairs and ramps shall not be less than 36" in clear width at all points above the permitted handrail height.
 - Max. riser height is 7 3/4". Max. riser opening is 4" when more than 30" above floor or walking surface.
 - Min. tread depth is 10" measured horizontally from face of nosing to face of nosing. (Nosing not required if tread is min. 11").
 - The greatest riser height/tread depth within any flight of stairs shall not exceed the smallest height/depth by more than 3/8" (Tread and riser dimensions cannot exceed min./max. of above items respectively).
 - Stringers should be the same as deck joist or per '**Joist Span Table**'.
 - Exterior stairways shall be provided with a means of illumination at the top of landings.
 - Ramps serving the egress door shall have a slope of not more than 1 unit vertical in 12 units horizontal. All other ramps shall have maximum slope of 1 unit vertical in 8 units horizontal.
 - All guards, handrails and lighting requirements for stairs also apply to ramps.

Code References:
 ICC International Building Code 2015
 ICC International Residential Code 2015

LEDGER FASTENER TABLE

CONNECTION DETAILS	JOIST SPAN						
	6' and less	6'1" to 8'	8'1" to 10'	10'1" to 12'	12'1" to 14'	14'1" to 16'	16'1" to 18'
	On-center spacing of fasteners						
1/2-inch diameter lag screw with 1/2-inch maximum sheathing ^{c, d}	30	23	18	15	13	11	10
1/2-inch diameter bolt with 1/2-inch maximum sheathing ^d	36	36	34	29	24	21	19
1/2-inch diameter bolt with 1-inch maximum sheathing ^e	36	36	29	24	21	18	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

- a. Ledgers shall be flashed in accordance with Section R703.8 to prevent water from contacting the house band joist.
- b. Snow load shall not be assumed to act concurrently with live load.
- c. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- d. Sheathing shall be wood structural panel or solid sawn lumber.
- e. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to 1/2-inch thickness of stacked washers shall be permitted to substitute for up to 1/2 inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

DECK BEAM SPAN LENGTHS TABLE

SPECIES ^a	SIZE ^d	DECK JOIST SPAN LESS THAN OR EQUAL TO: (feet)						
		6	8	10	12	14	16	18
Southern pine	2-2 x 6	6-11	5-11	5-4	4-10	4-6	4-3	4-0
	2-2 x 8	8-9	7-7	6-9	6-2	5-9	5-4	5-0
	2-2 x 10	10-4	9-0	8-0	7-4	6-9	6-4	6-0
	2-2 x 12	12-2	10-7	9-5	8-7	8-0	7-6	7-0
	3-2 x 6	8-2	7-5	6-8	6-1	5-8	5-3	5-0
	3-2 x 8	10-10	9-6	8-6	7-9	7-2	6-8	6-4
	3-2 x 10	13-0	11-3	10-0	9-2	8-6	7-11	7-6
	3-2 x 12	15-3	13-3	11-10	10-9	10-0	9-4	8-10

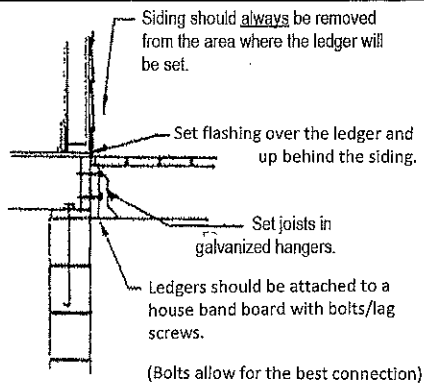
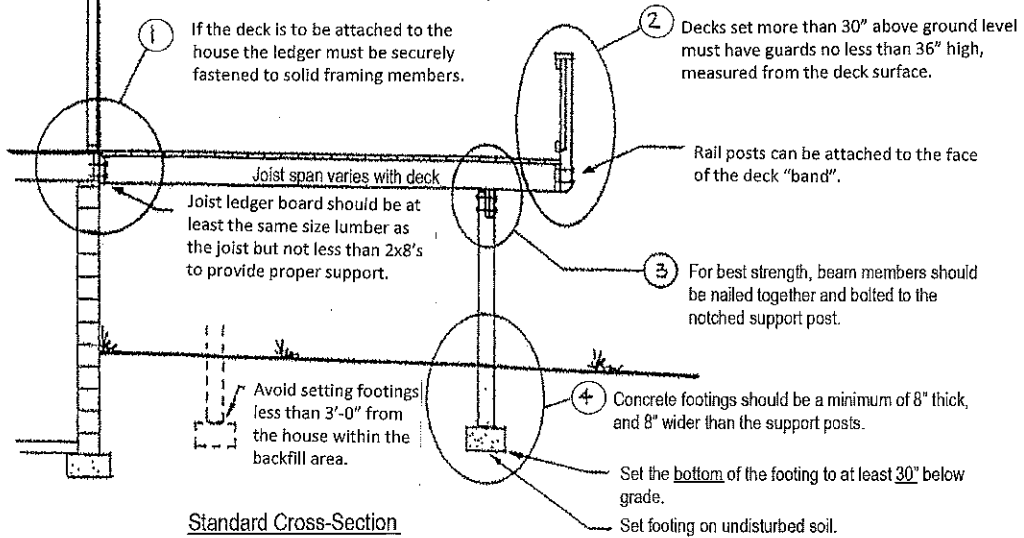
JOIST SPAN TABLE

SPECIES ^a	SIZE	SPACING OF DECK JOISTS WITH NO CANTILEVER ^b (inches)			SPACING OF DECK JOISTS WITH CANTILEVERS ^c (inches)		
		12	16	24	12	16	24
Southern pine	2 x 6	9-11	9-0	7-7	6-8	6-8	6-8
	2 x 8	13-1	11-10	9-8	10-1	10-1	9-8
	2 x 10	16-2	14-0	11-5	14-6	14-0	11-5
	2 x 12	18-0	16-6	13-6	18-0	16-6	13-6

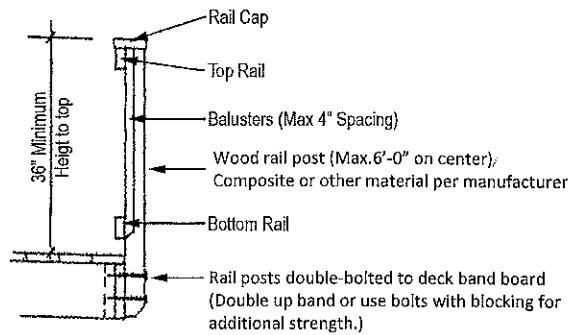
MAXIMUM JOIST SPACING FOR DECKING TABLE

MATERIAL TYPE AND NOMINAL SIZE	MAXIMUM ON-CENTER JOIST SPACING	
	Perpendicular to joist	Diagonal to joist ^a
1/4-inch-thick wood	16 inches	12 inches
2-inch-thick wood	24 inches	16 inches
Plastic composite	In accordance with Section R507.3	In accordance with Section R507.3

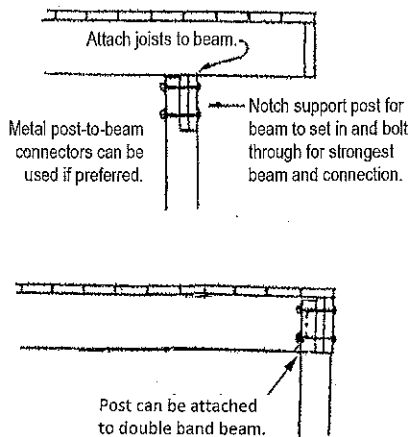
Standard Deck Construction Information



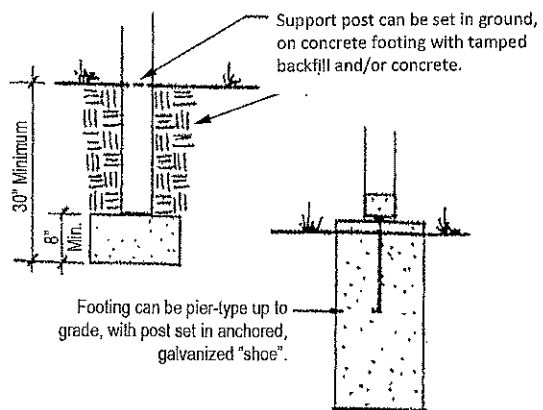
1 Ledger Detail
Shown for Frame/Siding Condition



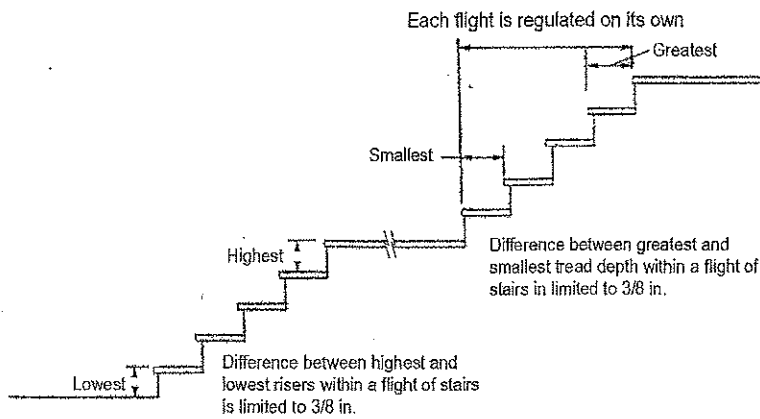
2 Railing Detail
Typical Detail - Many Variations Available



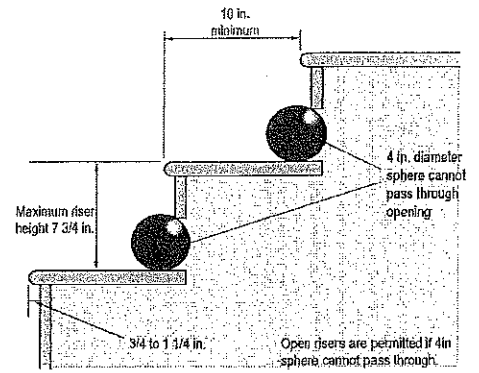
3 Beam/Post Detail



4 Footing Detail

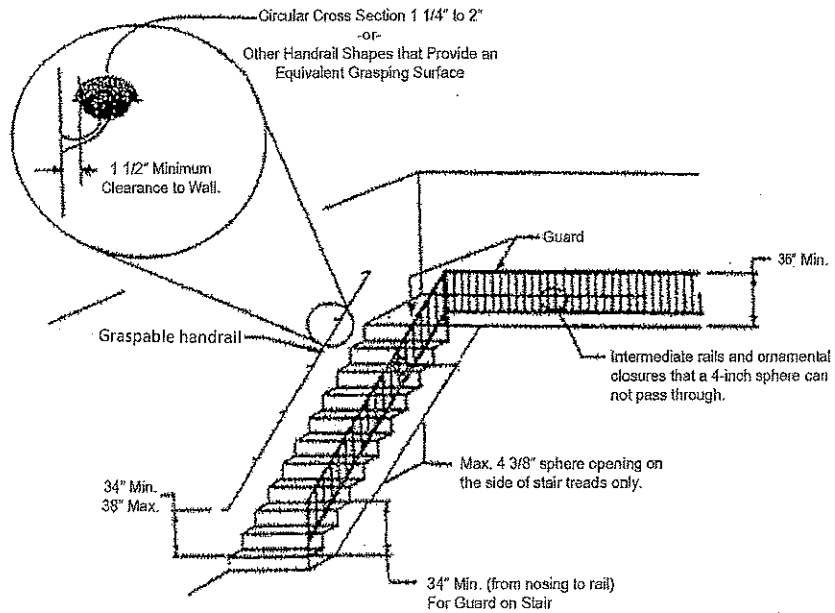


Stair Tolerances



Tread/Riser Profile (Open Riser)

Handrail/Guard



If a stairway has four or more risers, then the stairway requires a graspable handrail on at least one side.

