



# DECK CONSTRUCTION GUIDELINES

**Kevin Kamenetz,**  
County Executive

**Arnold Jablon,**  
Director, PAI

## Important Points:

1. **Footings-** Footings SHALL bear on UNDISTURBED solid ground (not backfill) and have a minimum frost depth of 30 inches. Minimum size of footing shall be per deck footing size chart. Minimum thickness of footings shall be 10". Minimum compressive strength of concrete is 3000 psi. Footings within 3' or less from existing exterior house wall shall bare at same elevation as house foundation.

2. **Lumber-** All lumber shall be identified as southern pine, grade #2 or better and shall be pressure-treated with an approved process and preservative in accordance with American Wood Protection Association standards. All lumber in contact with the ground shall be approved preservative treated wood suitable for "ground-contact". Maximum height of 6 x 6 post is 12 feet.

3. **Attaching the deck-** Unless the deck is independently supported, the attachment to the house is of critical importance. The ledger board must be attached to an adequate support using bolts. Nails alone will not do the job; they tend to work loose over time. *Most deck failures are the result of faulty support of the ledger board.* When there is no adequate attachment base available, the deck must be supported independently of the house (non-ledger). Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting (non-ledger).

4. **Hardware-** Nails, screws and bolts aren't very glamorous, but they are what hold the deck together. Since the beginning of 2004, pressure treated wood has contained a new chemical preservative mixture called ACQ. This new mixture, formulated to eliminate the use of arsenic, is corrosive to steel and aluminum. The old style deck nails and galvanized bolts won't do any more. The new preservative can destroy the old style fasteners in just a few years. *Only triple dip galvanized, stainless steel, or other approved fasteners are safe to use.* Fasteners and connectors exposed to salt water or located within 300 feet of a salt water shoreline shall be stainless steel grade 304 or 316.

5. **Cross bracing and Hold Down Tension Devices-** Cross-bracing required for decks over 5 feet high. Minimum of 4 hold down tension-ties required, to be installed at each end joist and first inside joist.

6. **Guards and Railings-** Guard posts shall be attached to deck structure with minimum two, 1/2" diameter through bolts and washers, no closer than 2" of top and bottom of support beam.

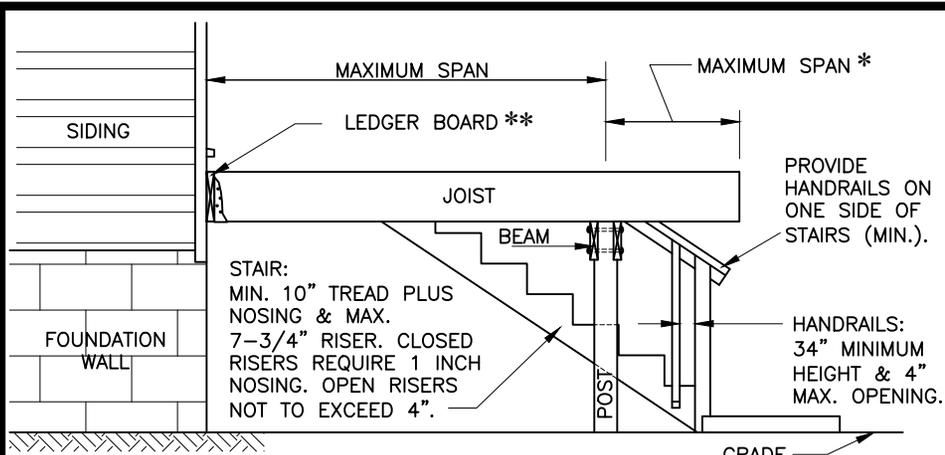
7. **Outdoor electrical receptacle-** Required when deck is attached to dwelling and is accessible from inside dwelling. Outlet to be no higher than 6 1/2 feet above the walking surface.

8. **Deck Designs-** Should design not comply with the typical deck details of either the Baltimore County Deck Construction Guidelines, or the Maryland Building Officials Association (MBOA) with minor exceptions above; **THEN** deck must be designed by Maryland Design Professional with two sets of signed and sealed construction drawings submitted at time of permit application.

## Building Inspections

Your deck will require an issued permit, and building inspection thru-out the construction process.

1. Footing (102),
2. Framing (107) if less than 16" above ground,
3. Completion (116)



STAIR:  
MIN. 10" TREAD PLUS  
NOSING & MAX.  
7-3/4" RISER. CLOSED  
RISERS REQUIRE 1 INCH  
NOSING. OPEN RISERS  
NOT TO EXCEED 4".

HANDRAILS:  
34" MINIMUM  
HEIGHT & 4"  
MAX. OPENING.

### DECK

SUPPORTED BY HOUSE ON ONE SIDE AND  
BY POSTS AND BEAM ON THE OTHER.

40 psf LIVE LOAD ON SUPPORTED SECTION OF JOIST.

\*\* LEDGER BOARD: SHALL BE EQUAL TO OR GREATER THAN THE DECK JOIST DEPTH,  
BUT LESS THAN OR EQUAL TO THE HOUSE BAND BOARD OR RIM  
JOIST DEPTH. LEDGER BOARD SHALL BE A MINIMUM 2"x8" NOMINAL.

IRC TABLE R507.5

SPAN TABLE – DECK JOISTS (PRESSURE TREATED SOUTHERN PINE #2)

JOIST SIZE	SPACING	MAXIMUM SPAN
2" x 6"	12" ON CENTER	9' – 11"
	16" ON CENTER	9' – 0"
	24" ON CENTER	7' – 7"
2" x 8"	12" ON CENTER	13' – 1"
	16" ON CENTER	11' – 10"
	24" ON CENTER	9' – 8"
2" x 10"	12" ON CENTER	16' – 2"
	16" ON CENTER	14' – 0"
	24" ON CENTER	11' – 5"
2" x 12"	12" ON CENTER	18' – 0"
	16" ON CENTER	16' – 6"
	24" ON CENTER	13' – 6"

### \* MAXIMUM ALLOWABLE OVERHANG OF DECK JOIST (PRESSURE TREATED SOUTHERN YELLOW PINE #2)

NOTE: OVERHANG SHALL NOT EXCEED 1/4 OF ACTUAL MAIN SPAN.  
SPANS ARE BASED ON AMERICAN WOOD COUNCIL FOR NO. 2  
GRADE SOUTHERN PINE.

JOIST SIZE	SPACING	MAXIMUM OVERHANG
2" x 6"	12" ON CENTER	1' – 3"
	16" ON CENTER	1' – 1"
	24" ON CENTER	1' – 0"
2" x 8"	12" ON CENTER	2' – 4"
	16" ON CENTER	2' – 0"
	24" ON CENTER	1' – 10"
2" x 10"	12" ON CENTER	3' – 5"
	16" ON CENTER	3' – 1"
	24" ON CENTER	2' – 10"
2" x 12"	12" ON CENTER	4' – 6"
	16" ON CENTER	4' – 2"
	24" ON CENTER	3' – 4"

### DECK FOOTING SIZES FOR ALL POSTS SOUTHERN PINE

BEAM SPAN	JOIST SPAN	6x6 POST HEIGHT	ROUND FOOTING DIAMETER	SQUARE FOOTING	FOOTING THICKNESS
6'	10'	12'	18"	16" x 16"	10"
	14'	12'	18"	16" x 16"	10"
8'	10'	12'	18"	16" x 16"	10"
	14'	12'	18"	16" x 16"	10"
10'	10'	12'	18"	16" x 16"	10"
	14'	12'	18"	16" x 16"	10"
12'	10'	12'	18"	16" x 16"	10"
	14'	12'	18"	16" x 16"	10"



PERMITS, APPROVAL AND  
INSPECTIONS

BALTIMORE COUNTY BUILDING CODE  
**DECK CONSTRUCTION DETAILS**  
FOR ACQ PRESSURE TREATED WOODS

REVISION  
OCTOBER 29, 2015

**WARNING: DO NOT ATTACH DECK LEDGER BOARD TO OVERHANGING FLOOR SYSTEM OR BAY WINDOW.**

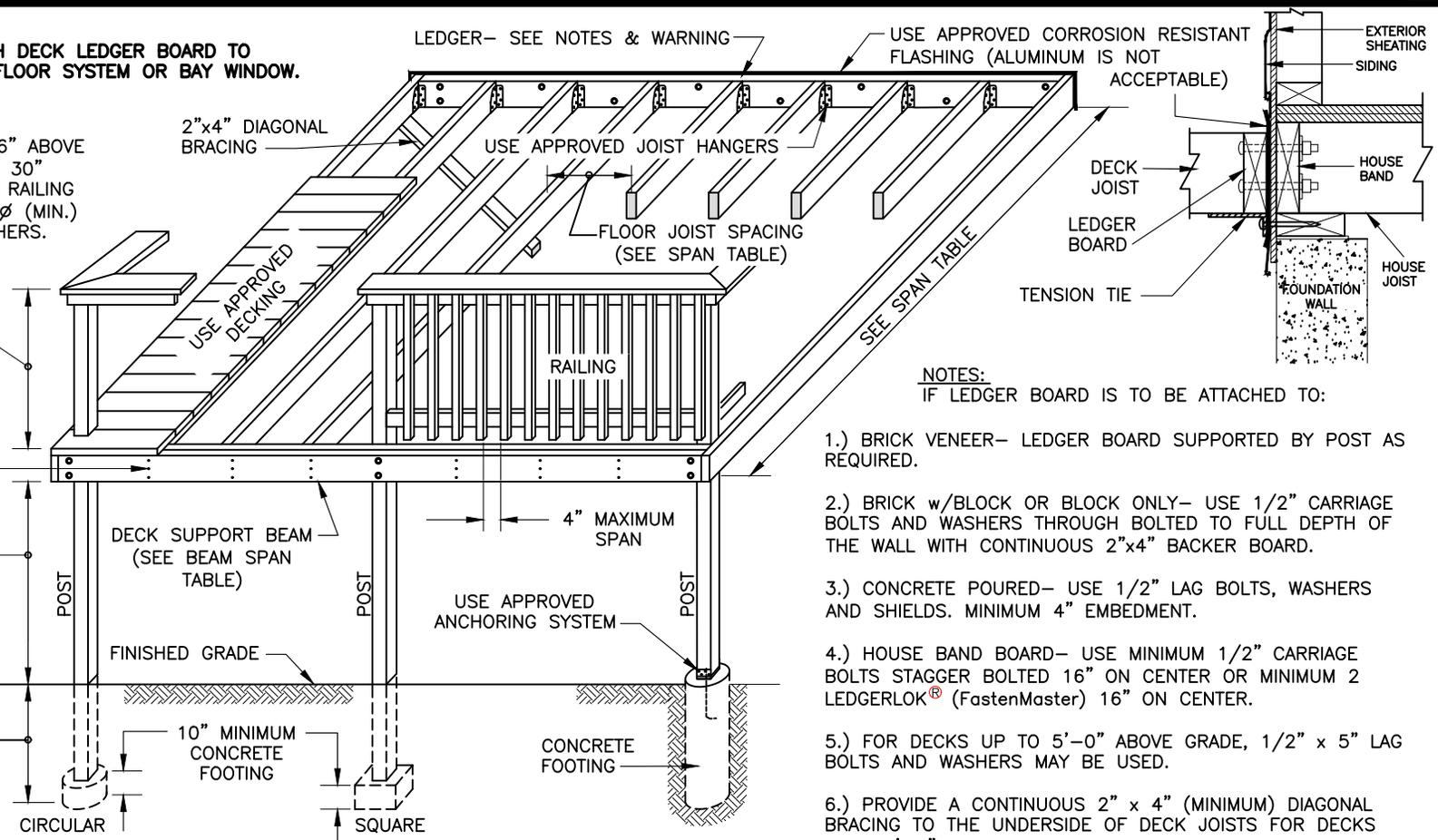
MINIMUM RAILING HEIGHT=36" ABOVE DECKING WHEN MORE THAN 30" ABOVE THE GRADE. ATTACH RAILING POST TO DECK WITH 1/2" Ø (MIN.) CARRIAGE BOLTS WITH WASHERS. NOTCHING GUARD POSTS IS PROHIBITED.

NAIL BEAMS TOGETHER WITH 3 ROWS NAIL AT 24" O.C. THRU ALL PLY. ALL SPLICES MUST BE ON BEARING POINTS.

MAXIMUM UNSUPPORTED POST HEIGHT FROM TOP OF FOOTING:

4" x 4"	8'-0"
4" x 6"	8'-0"
6" x 6"	12'-0"
8" x 8"	14'-0"

MINIMUM 30" BELOW GRADE



**NOTES:**

IF LEDGER BOARD IS TO BE ATTACHED TO:

- 1.) BRICK VENEER- LEDGER BOARD SUPPORTED BY POST AS REQUIRED.
- 2.) BRICK w/BLOCK OR BLOCK ONLY- USE 1/2" CARRIAGE BOLTS AND WASHERS THROUGH BOLTED TO FULL DEPTH OF THE WALL WITH CONTINUOUS 2"x4" BACKER BOARD.
- 3.) CONCRETE POURED- USE 1/2" LAG BOLTS, WASHERS AND SHIELDS. MINIMUM 4" EMBEDMENT.
- 4.) HOUSE BAND BOARD- USE MINIMUM 1/2" CARRIAGE BOLTS STAGGER BOLTED 16" ON CENTER OR MINIMUM 2 LEDGERLOK® (FastenMaster) 16" ON CENTER.
- 5.) FOR DECKS UP TO 5'-0" ABOVE GRADE, 1/2" x 5" LAG BOLTS AND WASHERS MAY BE USED.
- 6.) PROVIDE A CONTINUOUS 2" x 4" (MINIMUM) DIAGONAL BRACING TO THE UNDERSIDE OF DECK JOISTS FOR DECKS OVER 5'-0" ABOVE NATURAL GRADE.
- 7.) PERFORMANCE RATED RIM BOARD- USE MINIMUM 1/2" CARRIAGE BOLTS STAGGER BOLTED AS FOLLOWS:

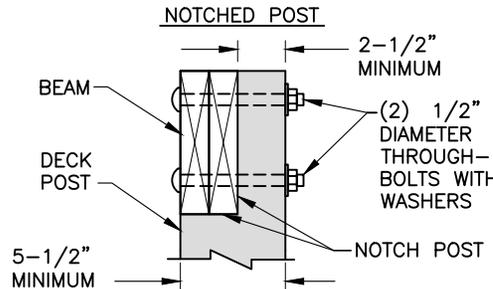
UP TO 12 FT. SPAN	16" ON CENTER
13 FT. - 15 FT. SPAN	10" ON CENTER
GREATER THAN 16 FT. SPAN	9" ON CENTER
LEDGERLOK® (FastenMaster)	2 PER 16" O.C. STAGGERED

8.) ALL NAILS, BOLTS & HANGERS MUST BE HOT DIP GALVANIZED, STAINLESS STEEL OR TRIPPLE COATED ZINC POLYMER MATERIAL.

**\*BEAM SPAN (FOR 12 FT. JOIST SPAN)**

2- 2" x 6"	MAX. SPAN= 4'-7"
2- 2" x 8"	MAX. SPAN= 5'-11"
3- 2" x 8"	MAX. SPAN= 7'-6"
2- 2" x 10"	MAX. SPAN= 7'-1"
3- 2" x 10"	MAX. SPAN= 8'-9"
2- 2" x 12"	MAX. SPAN= 8'-4"
3- 2" x 12"	MAX. SPAN= 10'-6"

\* BEAM SPAN BASED ON A.W.C. FOR NO. 2 GRADE SOUTHERN PINE, 40 P.S.F. LIVE LOAD AND 10 P.S.F. DEAD LOAD



PERMITS, APPROVAL AND INSPECTIONS

ARNOLD JABLON  
DIRECTOR

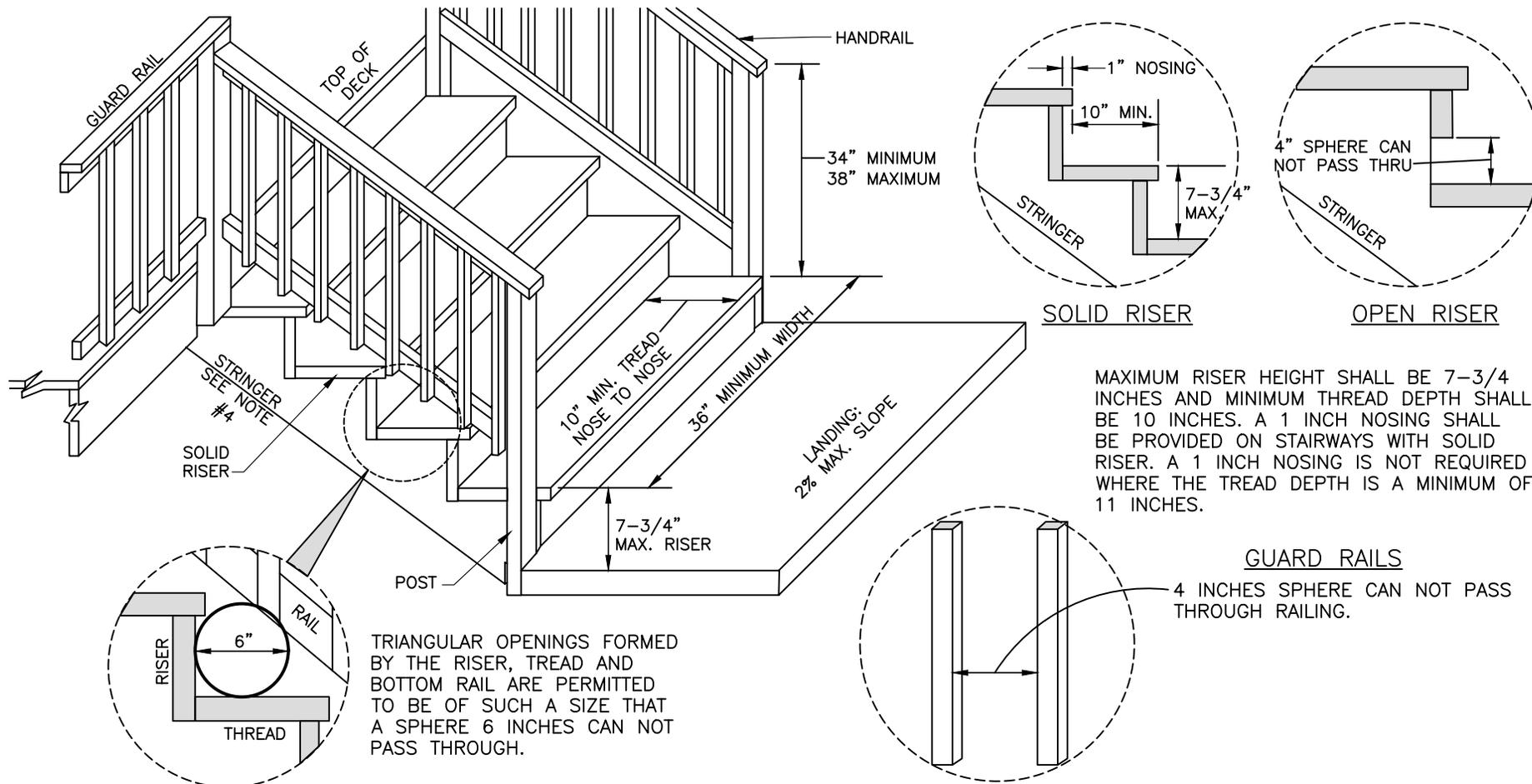
BALTIMORE COUNTY BUILDING CODE

**DECK CONSTRUCTION DETAILS**

FOR ACQ PRESSURE TREATED WOODS

REVISION

OCTOBER 20, 2015



MAXIMUM RISER HEIGHT SHALL BE 7-3/4 INCHES AND MINIMUM TREAD DEPTH SHALL BE 10 INCHES. A 1 INCH NOSING SHALL BE PROVIDED ON STAIRWAYS WITH SOLID RISER. A 1 INCH NOSING IS NOT REQUIRED WHERE THE TREAD DEPTH IS A MINIMUM OF 11 INCHES.

TRIANGULAR OPENINGS FORMED BY THE RISER, TREAD AND BOTTOM RAIL ARE PERMITTED TO BE OF SUCH A SIZE THAT A SPHERE 6 INCHES CAN NOT PASS THROUGH.

4 INCHES SPHERE CAN NOT PASS THROUGH RAILING.

**NOTES:**

1. ONE (1) HANDRAIL IS REQUIRED FOR 4 OR MORE RISER.
2. TWO (2) GUARDRAILS ARE REQUIRED FOR TREAD SURFACES MORE THAN 30 INCHES ABOVE GRADE, MINIMUM ONE (1) HANDRAIL.
3. ALL RISERS HEIGHTS SHALL BE EQUAL.
4. 2"x \_ TREADS, STRINGER'S MAXIMUM SPACING= 3'-0"; 5/8"x \_ TREAD, STRINGER'S MAXIMUM SPACING= 2'-0". TREX AND OTHER ENGINEERED MATERIALS MUST FOLLOWS MANUFACTURER'S RECOMMENDATION.

**SECTION 310.5 EMERGENCY ESCAPE WINDOWS UNDER DECKS**

EMERGENCY ESCAPE WINDOWS ARE ALLOWED TO BE INSTALLED UNDER DECKS AND PORCHES PROVIDED THE LOCATION OF THE DECK ALLOWS THE EMERGENCY ESCAPE WINDOWS TO BE FULLY OPENED AND PROVIDES A PATH NOT LESS THAN 36 INCHES IN HEIGHT TO A YARD OR COURT.



PERMITS, APPROVAL AND INSPECTIONS

BALTIMORE COUNTY BUILDING CODE

**OUTSIDE DECK STAIR DETAILS**

REVISION

NOVEMBER 2, 2015