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www.LimerickPA.org

DECK SUBMITTAL GUIDE

VALID UNTIL ADOPTION OF 2021 IRC

APPLICATION PROCESS FOR PERMIT

Any owner or authorized agent, who intends to construct a deck regulated by the International Residential Code (IRC), shall first submit a Deck Permit Application to the Limerick Township Code Services Department and obtain the required permit.

The Code Services Department accepts permit applications Mondays through Fridays, except on major holidays when the township building is closed. Applications can be found on the [Permits & Forms](#) page of the Limerick Township website (www.LimerickPA.org). They can be emailed to Codes@LimerickPA.org, submitted in person or via the drop-off box in the vestibule of the Township building, or mailed via USPS.

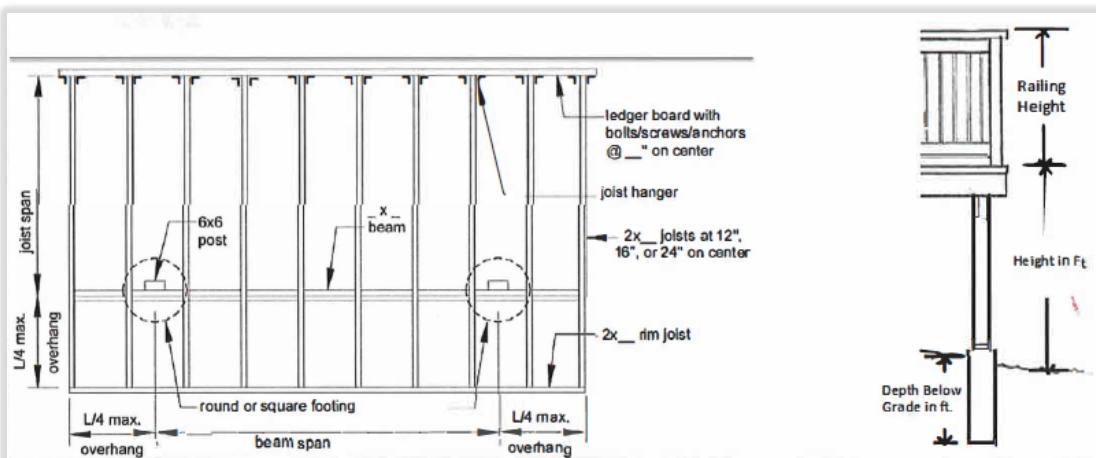
Once an application has been submitted, it will undergo the review process. Application submittals undergo a Building Code review and a Zoning review. The Code Services Department has up to fifteen (15) business days to review an application and contact the owner or agent with any questions/concerns. The Zoning Department has up to thirty (30) days to review an application. If the application is approved, the applicant will be contacted via phone or email.

Failure to obtain the required permit before the start of construction may lead to violations and fines as prescribed by law, and shall result in the potential permit fee being doubled.

1. Complete the Deck Permit Application and submit it to Limerick Township along with two sets of the required structural drawing and plot plan. If unable to complete the application or the required drawings, please seek a design professional. The Township cannot, by law, provide design assistance.
2. The structural drawing should contain the following information (see example on page 2):
 - Footing details showing footing diameter and footing depth
 - Post details showing post locations, post size and spacing
 - Header locations, and header sizes
 - Post to beam connection detail
 - Floor joist size, floor joist spacing, and floor joist spans
 - Cantilever spans
 - Ledger connection and bolt spacing
 - Flashing
 - Cross bracing
 - Stair, handrail, and guard details and dimensions

STRUCTURAL DRAWING EXAMPLE

A structural framing plan is required when applying for a deck permit. The plan should show the deck from a bird's-eye-view indicating the necessary elements of framing.



3. The plot plan shall contain the following:

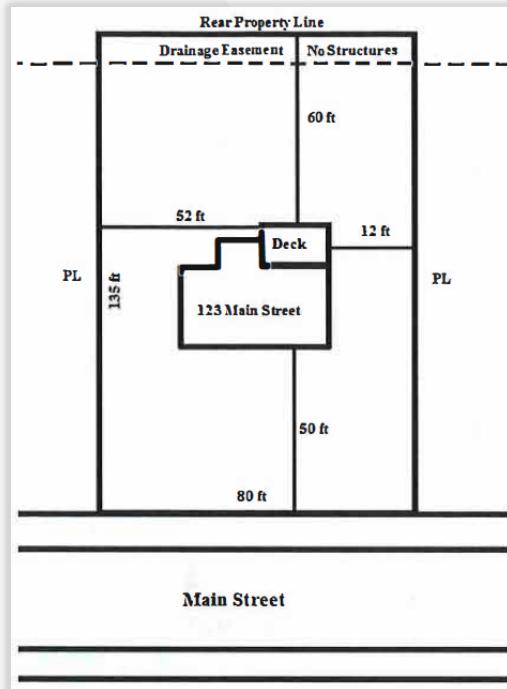
- Property boundaries
- The proposed deck and the setback distances to the property lines
- Location of all roads, easements, alleys, and rights-of-way
- Location of existing structures including the house, pools, and sheds, etc.

4. The following inspections are required during deck construction:

- Footing inspections are required before the concrete is poured. All holes must be cleaned and free from loose dirt.
- Framing inspection must be completed before concealing structural members.
- Final inspection shall be scheduled when all construction of the deck has been completed.

NOTE: ALL INSPECTIONS ARE MANDATORY BY LAW. FAILURE TO OBTAIN THE INSPECTIONS MAY CAUSE VIOLATIONS AND FINES, OR OTHER APPROPRIATE PENALTIES AT LAW OR IN EQUITY TO ABATE OR RESTRAIN THE VIOLATION.

5. Before digging or excavating, contact PA One Call by dialing 8-1-1 to have underground power or utility line locations marked. (State Law)



6. It shall be the duty of the permit holder or their agent to notify the building official that such work is ready for inspection. It shall be the duty of the person requesting any inspections required by this code to provide access and means for inspection of such work.
7. All inspections must be made at least 24 hours in advance. All construction documents shall be on the jobsite and provided to inspector upon request.
8. Decks may not be occupied until all inspections have been completed and a Certificate of Occupancy has been issued by the Building Code Official.

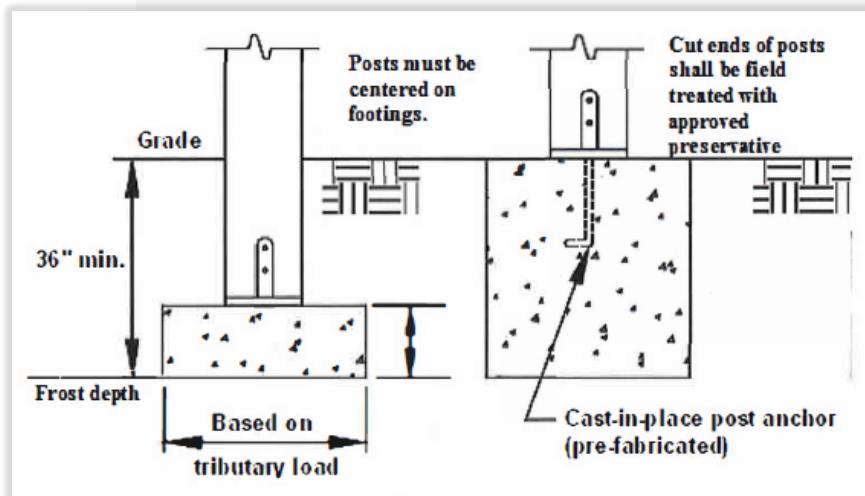
NOTICE

PLEASE NOTE THAT THIS DOCUMENT IS INTENDED TO BE A HELPFUL GUIDE FOR DECK APPLICATION SUBMITTALS. IT IS NOT INTENDED TO PRECLUDE THE USE OF OTHER CONSTRUCTION METHODS OR MATERIALS. THIS DOCUMENT DOES NOT COVER EVERY CODE APPLICABLE TO DECK CONSTRUCTION.

FOOTINGS

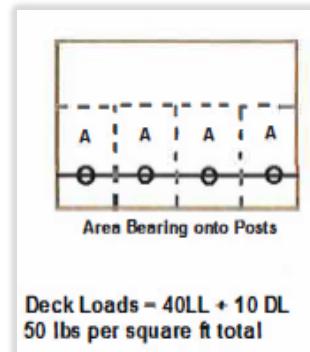
Except for freestanding decks not attached to the house for support, all footers must be a minimum of 36" below grade and bear on solid, undisturbed soil. The size of footings supporting piers and columns shall be based on the tributary load and an assumed soil load bearing capacity of 2,500 lbs. per square foot.

FOOTINGS EXAMPLE

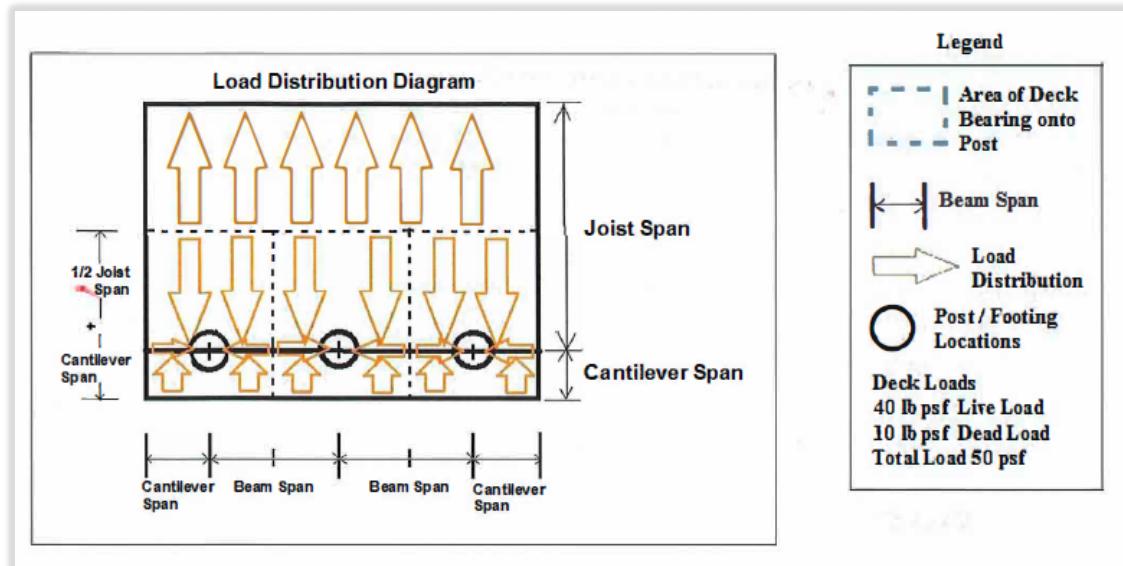


DETERMINING FOOTING DIAMETERS

1. Determine the area of the deck bearing onto the post. (See Load Distribution Diagram below).
2. Multiply the area bearing onto the post by 50 lbs. This gives you the total weight bearing onto the post.



LOAD DISTRIBUTION DIAGRAM



JOIST SIZING AND SPAN

TABLE R507.5
DECK JOIST SPANS FOR COMMON LUMBER SPECIES* (ft. - in.)

SPECIES*	SIZE	SPACING OF DECK JOISTS WITH NO CANTILEVER* (inches)			SPACING OF DECK JOISTS WITH CANTILEVERS* (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
Douglas fir-larch ^d , hem-fir ^d , spruce-pine-fir ^d	2 x 6	9-6	8-8	7-2	6-3	6-3	6-3
	2 x 8	12-6	11-1	9-1	9-5	9-5	9-1
	2 x 10	15-8	13-7	11-1	13-7	13-7	11-1
	2 x 12	18-0	15-9	12-10	18-0	15-9	12-10
Redwood, western cedars, ponderosa pine ^e , red pine ^e	2 x 6	8-10	8-0	7-0	5-7	5-7	5-7
	2 x 8	11-8	10-7	8-8	8-6	8-6	8-6
	2 x 10	14-11	13-0	10-7	12-3	12-3	10-7
	2 x 12	17-5	15-1	12-4	16-5	15-1	12-4

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

a. No. 2 grade with wet service factor.

b. Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$.

c. Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever with a 220-pound point load applied to end.

d. Includes incising factor.

e. Northern species with no incising factor.

f. Cantilevered spans not exceeding the nominal depth of the joist are permitted.

3. Refer to the **Exterior Deck Footer & Span Chart** below to choose the correct footing diameter based on the load-bearing capacity of the soil, the total weight bearing onto the post, and the type of footing to be installed.

EXTERIOR DECK FOOTER & SPAN CHART

TABLE R507.3.1

FOOTER SIZING ASSUME 2500 PSF SOIL BEARING

TRIBUTARY AREA	SQUARE	ROUND	THICKNESS
20	12	14	6
40	12	14	6
60	13	15	6
80	15	17	6
100	17	19	6
120	19	21	6
140	20	23	7
160	21	24	8

JOIST SPAN JOIST SPACING O/C

JOIST SIZE	12"	16"
2X6	9-11	9-0
2X8	13-1	11-10
2X10	16-2	14-0
2X12	18-0	16-6

TABLE R507.5

BEAM SIZING Southern Pine #2

DECK JOIST SPAN (LESS OR EQUAL TO)

BEAM SIZE	6'	8'	10'	12'	14'	16'	18'
(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)2X8	10-10	9-6	8-6	7-9	7-2	6-8	6-4
(3)2X10	13-10	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

TABLE R507.5

BEAM SIZING SPF #2 / Hem Fir

DECK JOIST SPAN (LESS OR EQUAL TO)

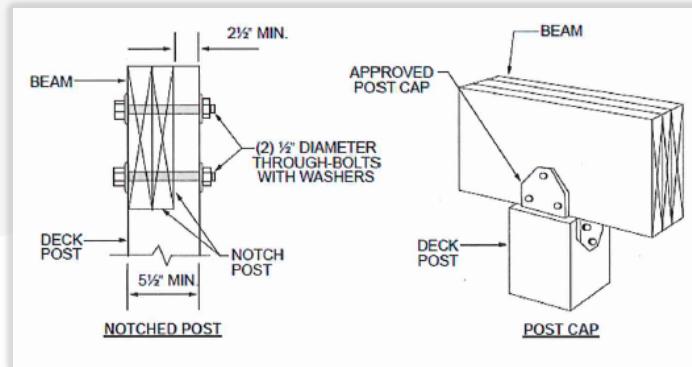
BEAM SIZE	6'	8'	10'	12'	14'	16'	18'
(2)2X8	6-10	5-11	5-4	4-10	4-6	4-1	3-8
(2)2X10	8-4	7-3	6-6	5-11	5-6	5-1	4-8
(2)2X12	9-8	8-5	7-6	6-10	6-4	5-11	5-7
(3)2X8	9-8	8-6	7-7	6-11	6-5	6-0	5-8
(3)2X10	12-0	10-5	9-4	8-6	7-10	7-4	6-11
(3)2X12	13-11	12-1	10-9	9-10	9-1	8-6	8-1

BEAM SIZE REQUIREMENTS

Beams shall not exceed values shown on the **Exterior Deck Footer & Span Chart** above. The ends of the beams shall have not less than 1.5 inches of bearing onto wood supports. Beams may not be supported on deck ledgers or band joists. If using engineered lumber, engineered specs are required upon submission.

POST-TO-BEAM CONNECTIONS

Post-to-beams connections shall comply with one of the examples shown in the image to the right. Other methods may be determined appropriate by the Building Code Official provided an ES report or engineered specifications are provided.

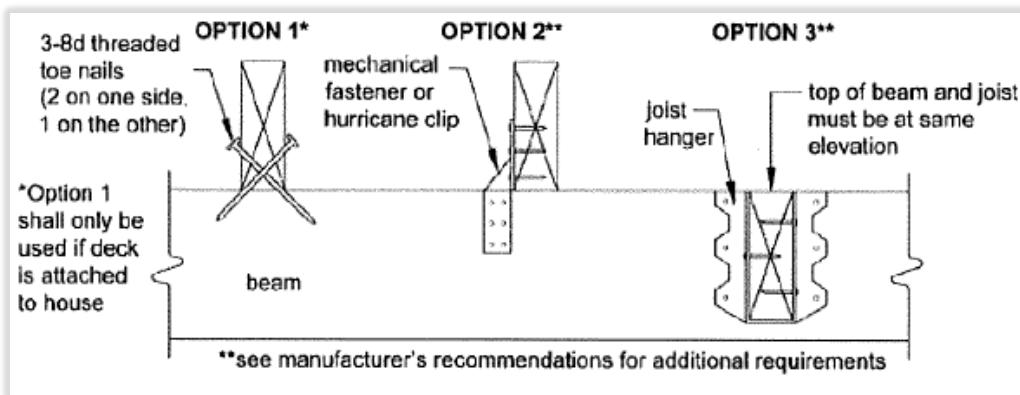


JOIST-TO-BEAM CONNECTIONS

All joists shall be properly attached to each beam and ledger with appropriate means of fasteners. The following attachment methods are permitted: toenails, hurricane clips, and joist hangers.

NOTE: SCREWS ARE NOT PERMITTED. See below for available options. (Option 1 is only permitted when the deck is attached to the house.)

JOIST-TO-BEAM DETAIL

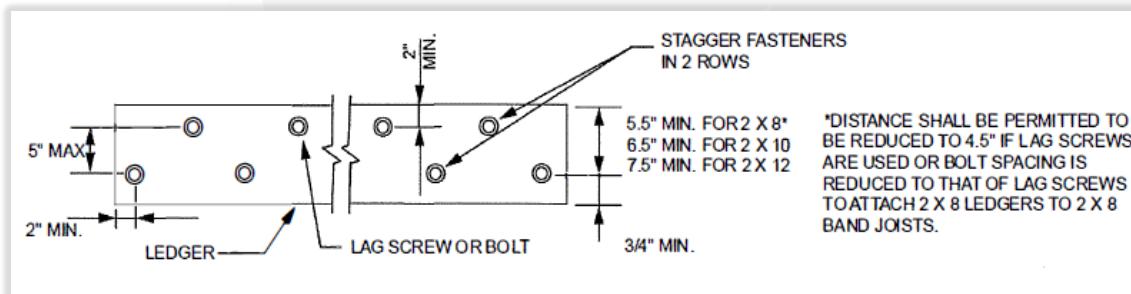


LEDGER ATTACHMENT

The connection between a deck ledger and a 2-inch nominal lumber band joist bearing on a sill plate or wall plate shall be constructed with $\frac{1}{2}$ -inch lag screws or bolts with washers in accordance with Table R507.2 of the 2018 IRC. Lag screws, bolts and washers shall be hot-dipped galvanized or stainless steel. The removal of siding and installation of flashing is required between the house and the ledger.



NOTE: YOU MAY NOT ATTACH LEDGER BOARDS TO EXISTING CANTILEVERS, OPEN WEB TRUSSES OR STONE OR MASONRY VENEER. If these conditions occur, the deck must be freestanding. If a freestanding deck is utilized, then it must be braced diagonally to resist lateral loads.



Refer to Table R507.2 (shown below) for the spacing of ledger fasteners.

TABLE R507.2

TABLE R507.2
DECK LEDGER CONNECTION TO BAND JOIST^{a, b}
(Deck live load = 40 psf, deck dead load = 10 psf, snow load \leq 40 psf)

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.

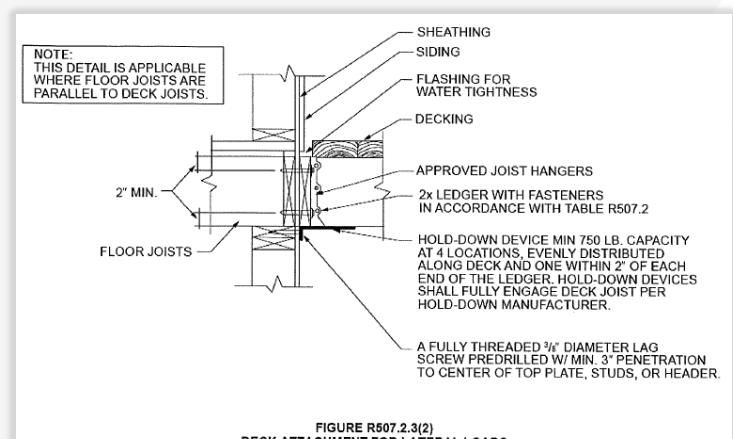
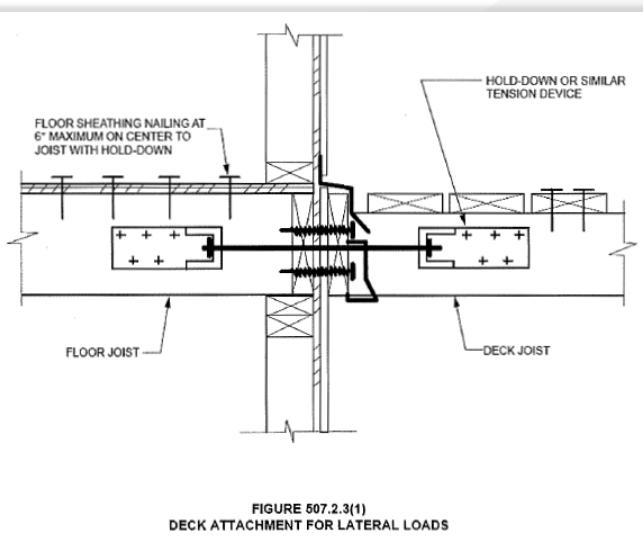
c. The tip of the lag screw shall fully extend beyond the inside face of the band joist.

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 LATERAL LOAD ATTACHMENT METHODS

- Required for all decks with ledger board attachments
- Either method is acceptable

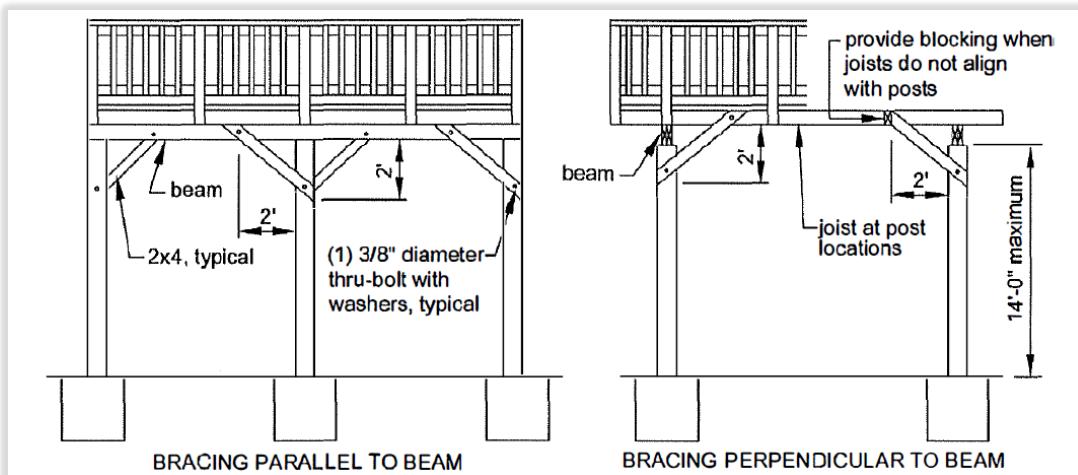


BRACING

Exterior landings, decks, and stairs shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal. Decks greater than two (2) feet above grade shall be provided with diagonal bracing.

Freestanding decks shall require diagonal bracing both parallel and perpendicular to the beam at each post.

DIAGONAL BRACING REQUIREMENTS

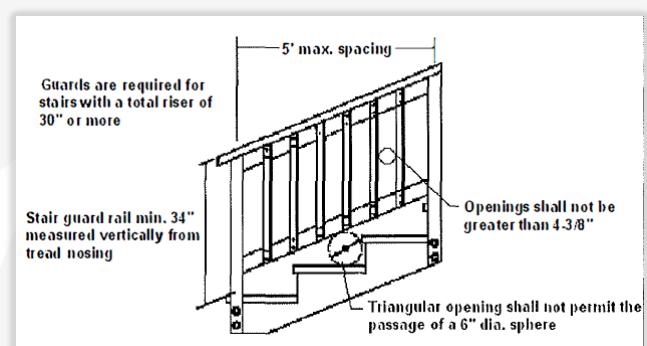
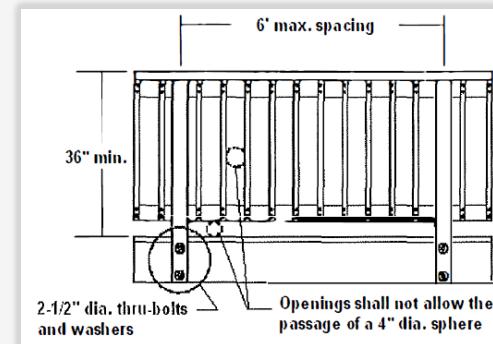


GUARD REQUIREMENTS

Porches, balconies, ramps, or raised floor surfaces located more than 30" above grade shall have guards not less than 36" in height. Open sides of stairs with a total rise of more than 30" shall not have guards less than 34" measured vertically from the tread nosing. If a fixed bench is adjacent to a guard, the guard height must be measured from the bench surface.

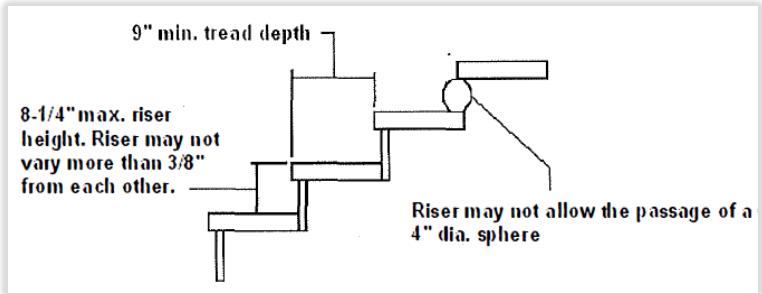
Required guards on open sides of stairways, decks, balconies and porches shall have intermediate rails or ornamental closures which do not allow the passage of a 4-inch sphere. The exceptions are as follows:

1. The triangular openings formed by the riser, tread and bottom rail at the open side of the stairway are permitted to be of such size that a 6-inch sphere cannot pass through.
2. Openings for required guards on the sides of stairs shall not allow the passage of a 4- $\frac{3}{8}$ inch sphere.



TREAD AND RISER REQUIREMENTS

The maximum riser height shall be 8-1/4 inches measured vertically between leading edges of adjacent treads. The minimum tread depth shall be 9 inches measured horizontally from beginning to end of tread.



HANDRAIL REQUIREMENTS

Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers. Handrails shall be located between 34" and 38" measured vertically from the sloped plane adjoining tread nosing (refer to "Diagonal Bracing Requirements" image on previous page). It shall be continuous for the full length of the flight. Handrails shall have safety returns at the top and bottom or terminate into newel posts.

Handrails shall comply with one of the following options:

