

RESIDENTIAL DECK CONSTRUCTION

PERMITTING

A BUILDING PERMIT IS NOT REQUIRED IF THE WALKING SURFACE OF THE DECK IS 30 INCHES OR LESS ABOVE FINISHED GRADE. IF ANY PORTION OF THE DECK HAS A WALKING SURFACE LOCATED MORE THAN 30 INCHES ABOVE FINISHED GRADE, A BUILDING & ZONING PERMIT IS REQUIRED. ONLY A ZONING PERMIT IS REQUIRED FOR A DECK AND/OR PATIO LOCATED LESS THAN 30 INCHES ABOVE FINISHED GRADE.

PLAN REQUIREMENTS

Submit three (3) copies of the following:

- Site plan (separate from the construction documents) depicting the distance of the structure from existing property lines.
- Deck framing plan.
- Deck cross section and
- Stairway, guardrail and handrail details (if applicable).

At time of permit issuance, the permit applicant will receive an approved set of construction plans and an approved site plan along with the building permit and permit amendments.

GENERAL DECK CONSTRUCTION NOTES

- Lumber shall be southern pine, grade #2 or better and shall be pressure treated ACQ or CA-B.
- Framing hardware and fasteners shall be hot-dipped galvanized or stainless steel.
- Decks shall not be attached to house overhangs, cantilevered bay windows, veneers, exterior finishes, or chimneys without the approval of a Pennsylvania registered architect or professional engineer.
- Inspections for decks include footing (prior to pouring concrete), framing and final. Framing and final inspections may be combined if the deck is elevated a minimum of 36" above grade.
- Electrical work performed in conjunction with deck projects is subject to the applicable provisions of the electrical code. Electrical work is subject to field inspection at the rough and final stages.
- Decks shall not be used or occupied until all final inspection approvals are obtained.

PLAN SPECIFICATIONS (Draw to scale or include dimensions on plans)

Deck Framing Plan

- **Ledger Board:** Type, size and attachment details for ledger board. Ledger board attachment to the existing house shall be capable of supporting the new deck. Details are to include the existing house construction that will support the ledger, type of flashing, type/size of ledger board, type/size/spacing of ledger anchors.
IRC R502.2.1
- **Flashing:** Remove exterior finishes prior to installing the ledger board. Install flashing where ledgers are secured to existing construction. Flashing is required at ledger connections of wood framed walls. Approved flashing materials include

galvanized steel, UV resistant plastics/rubber, stainless steel and copper (attached using copper nails). IRC R703.8

- **Beams:** Identify the location, size, type, number of plies, and span of structural beams. Secure built-up wood beams with no less than two rows of 10d galvanized or stainless steel nails in a staggered pattern 16" on center. 3 rows of 10d nails needed for beams 10" or deeper. For beams secured to opposite sides of posts, install solid full depth 2x blocking at 4'0" on center.

MINIMUM BEAM SIZES FOR SINGLE SPAN JOIST LOADS

Joist Span	Minimum Beam Size*
0-6'8"	(2) 2" x 6"
6'8"- 11'2"	(2) 2"x 8"
11'2" – 15'9"	(2) 2" x 10"
16'0" – 18'9"	(2) 2" x 12"

*Beam sizes are based on support post spacing of 8 feet with single span floor joists extending from ledger board. This table is not applicable for beams carrying floor joist loads from two directions. This table is not applicable for decks supporting hot tubs or other concentrated loads.
IRC RS01.2

Floor Joists: Identify the size, type, on center spacing and direction of span of the floor joists.

Joist Size	Joist Spacing on Center	Joist Span (no overhang)
2x6	16"	9'9"
2x6	24"	8'6"
2x8	16"	12'10"
2x8	24"	11'0"
2x10	16"	16'1"
2x10	24"	13'1"
2x12	16"	18'10"
2x12	24"	15'5"

2003 IRC Table R502.3.1(2)

Spans are based on 40 PSF live load, 10 PSF dead load, and southern pine #2, deflection of V360. This table is not applicable for decks supporting hot tubs or other concentrated loads.

- **Floor Deck:** Identify the type of decking to be installed. Typical materials include 2"x 6" or 5/4" (five-quarter) lumber. Composite decking is permitted if installed per manufacturer's product specifications.
- **Support Posts:** Identify the location of support posts on the framing plan. 4" x 4" posts are permitted for decks up to 36" above grade. Decks above 36" are to be supported on 6" x 6" posts. Post to beam connections require (2) *W* diameter hot-dipped galvanized or stainless steel thru-bolts with washers. Single 1/2" diameter bolts are permitted for 2" x 6" beams. IRC R502.9
- **Footings:** Illustrate footing locations on the framing plan. IRC401.2
- **Stairways:** Identify stairway(s) and or deck elevation changes on the framing plan. IRC 311.5

PLAN SPECIFICATIONS (Draw to scale or include dimensions on plans)

Cross Section

- **Footings:** Identify the footing depth below grade and footing dimensions. Footings shall bear on solid ground and be dug to a depth not less than the frost line depth of 36". No less than 12" of concrete is to be placed under all support posts, the bottom of which is 36" below grade.
- Footings shall be 12" square or 15" in diameter for 4" x 4" posts. Footings shall be 16" square or 18" in diameter for 6" x 6" posts. IRC R401.2
- **Support Posts:** Identify the size of support posts and the elevation of the deck above grade.
- **Post-to-Beam Attachment:** Identify the location and size of beams and identify the method of attachment between the support posts and beams. Post to beam connections require (2) 1/2" diameter hot-dipped galvanized or stainless steel thru-bolts with washers. Single 3/4" diameter bolts are permitted for 2" x 6" beams. IRC R502.9
- **Floor Framing:** Identify the floor joist type, size and span and on center spacing.
- **Floor Overhangs:** Cantilevers of up to 3 feet are permitted with a backspan to cantilever ratio of 2:1. For example, a 3 foot cantilever requires a minimum 6 foot joist back span.
- Connections capable of resisting the uplift forces at the backspan support shall be provided. A full depth rim joist shall be provided at the cantilevered ends of the joists. RC 502.2.1
- **Guardrail System:** Identify guard systems. Provide attachment methods for securing guard posts to deck structure. Guards shall be designed to withstand a 200 pound load applied to the top rail at any point and in any direction. IRC 312.1 & 312.2

Stairway Specifications

- **Stair width:** Provide the proposed width of the stairway. Stairways shall not be less than 36" in clear width. Handrails may project into the clear width by no more than 4 1/2" on either side of the stairway. Clear width at and below the handrail height, shall not be less than 31 1/2" where a handrail is installed on one side and 27" where handrails are provided on both sides. IRC 311.5.1
- **Stair treads and risers:** Provide the proposed stairway riser heights and tread depths. Stairway riser height are not to exceed 8 1/4" with no more than a 3/8 inch variation in riser height within a flight of stairs. The minimum tread depth is 9 inches measured from tread nosing to tread nosing. The greatest tread depth

within any flight of stairs may not exceed the smallest by more than 3/8 inch. IRC 311.5.3 per PA UCC 403.21(2) Risers may be open, but shall not allow the passage of a 4 inch diameter sphere on stairs with a total rise of 30 inches or more.

- **Stair profile:** A nosing not less than 3/4" but not more than 1 1/4" shall be provided on stairways with solid risers. Nosings are not required with a tread depth of 10" or more. IRC R311.5.3.3
- **Stairway illumination:** Exterior stairs shall be provided with a means to illuminate the stairs, including the landings and treads. Exterior stairs shall be provided with an artificial light source located in the immediate vicinity of the top landing of the stairway. The illumination of exterior stairways shall be controlled from inside the dwelling. IRC 303.6 & 303.6.11
- **Guardrails:** Provide an elevation detail of the proposed guard system(s). Guards along elevated deck surfaces shall be no less than 36" in height with openings not to exceed 4". Guards along stairways shall be no less than 34" measured vertically from the stair nosings with openings not to exceed 4 3/8". IRC 312.1 & 312.2
- **Handrails:** Provide a cross sectional detail of required graspable handrail. Handrails having a minimum and maximum heights of 34 inches and 38 inches respectively, measured vertically from the nosing of the treads, shall be provided on the least one side of the stairways of four or more risers. Handrails shall be continuous the full length of the stairs. Handrails shall be graspable and shall be constructed of decay-resistant and/or corrosion resistant material. Circular handrails shall be between 1 1/4" - 2" in diameter. Non-circular handrails with a perimeter dimension greater than 6 1/4" shall provide a graspable finger recess area on both sides of the profile. The width of the handrail above the recess shall be between 1 1/4" - 2 3/4". IRC R311.5.6 & R311.5.6.3