



WARRINGTON TOWNSHIP CODE ENFORCEMENT

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RESIDENTIAL DECKS

Plan Submittal and Inspection Requirements

The following information will provide guidance and instruction for submittal of a building permit application consisting of proposed construction and/ or repair to Residential Decks. The contractor or homeowner constructing the structure should note regulations and codes might be changed without notice. Further questions or comments can be referred to the Building Inspectors prior to submission to make certain of appropriate information.

Step 1: Permits and Plan approval process:

A permit is required by Warrington Township prior to the construction or replacement of a deck. For submission, the following is needed:

1. A completed and signed Building Permit Application (**See Zoning & Building Permit Application Form**).
2. A site plan, drawn to scale showing the location of the deck, setbacks, and easements from the property lines.
 - a. Setbacks: unless a special exception, decks are only permitted in the rear and side yards. Decks are permitted to encroach one-half of the minimum required side and rear yard setbacks. (**See Zoning Department or Zoning Ordinance Book for specific detail**).
3. Two (2) sets of construction drawings showing the following:
 - a. Floor plan of deck with all dimensions;
 - b. The columns, beams, joists sizes, and spacing of structural members with dimensions;
 - c. Show all connections in detail of above items and attachment to existing structure;
 - d. Footing sizes and location with dimensions;
 - e. Stair and railing details.
4. Plan Details should consist of:
 - a. A listing of construction materials to be used
 - i. Materials must be either a naturally decay resistant lumber or pressure treated lumber in accordance with AWPA UI;
 - ii. Materials must be designed to support a minimum live load of 40-PSF
 - iii. Composite material may be used in accordance with manufacturers listing and approved evaluation service. Submit specifications with application.
 - b. Footing, foundation, deck framing, and floor plan:
 - i. **Footings/ Soil Bearing:** All decks must sit on footings or piers that are adequately designed to support the imposed loads (minimum assumed bearing capacity is 2000 pounds per square foot). Footings or piers shall extend a minimum of thirty-six (36)-inches below the finished ground level or solid soil.
 - c. Construction (Section 311.5):
 - i. **Attachment (Section 311.5.1):** *Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting.*
 - ii. **Stairs (Section 311.7):**
 1. **Width (Section 311.7.1):** *Stairways shall not be less than 36 inches (914 mm) in clear width.*
 - a. **Exception:** *The width of spiral stairways shall be in accordance with Section R311.7.9.1.*
 2. **Riser Height (Section 311.7.4.1):** *The maximum riser height shall be 7 ¾ inches (196 mm).*
 - iii. **Landings for Stairways (Section 311.7.5):** *There shall be a floor or landing at the top and bottom of each stairway.*

1. *Exception: A floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs. A flight of stairs shall not have a vertical rise larger than 12 feet (3658 mm) between floor levels or landings. The width of each landing shall not be less than the width of the stairway served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.*
- iv. **Handrails (Section 311.7.7):** Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers.
1. **Height (Section 311.7.7.1):** handrail height, measured vertically from the sloped plane adjoining the treads nosing, or finish surface of ramp slope, shall be not less than 34-inches and not more than 38 inches.
 2. **Continuity (Section 311.7.7.2):** Handrails for stairways shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight.
 - a. Handrail ends shall be returned or shall terminate in newel posts of safety terminals.
 3. **Handrail Grip Size (Section 311.7.7.3):** All required handrails shall be of one of the following types or provide equivalent graspability.
 - a. *Type I. Handrails with a circular cross section shall have an outside diameter of at least 1 ¼ inches and not greater than 2-inches. If the handrail is not circular it shall have a perimeter dimension of at least 4 inches and not greater than 6 1/4 inches with a maximum cross section of dimension of 2 ¼ inches.*
 - b. *Type II. Handrails with a perimeter greater than 6 ¼ inches shall provide a graspable finger recess are on both sides of the profile. The finger recess shall begin within a distance of ¾ inch measured vertical from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. This required depth shall continue for at least 3/8 inch to a level that is not less than 1 ¾ inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1-¼ inches to a maximum of 2 ¾ inches. Edges shall have a minimum radius of 0.01 inch.*
 4. **Illumination (Section R311.7.8):** All stairs shall be provided with illumination in accordance with Section R303.6.
- v. **Guards (Section 312):** Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a guard.
1. **Height R312.2:** Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) high.
 - a. **Exceptions:**
 - i. *Where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.*
 2. **Opening limitations R312.3:** Required guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4 inches (102 mm) in diameter.
 - a. **Exceptions:**
 - i. The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches (153 mm) in diameter.
 - ii. Guards on the open sides of stairs shall not have openings which allow passage of a sphere 43/8 inches (111 mm) in diameter.

- 3. **Exterior Woodplastic Composite Guards R312.4:** *Woodplastic composite guards shall comply with the provisions of Section R317.4.*
- vi. **Span Tables:** Tables are based on the 2009 International Residential Code (IRC) for the species and grade of lumber shown. For other situations consult the tables in the building code.
- vii. **Siding:** Remove existing siding prior to installing ledger board.
- viii. **Flashing and Fasteners (Section R317.3.1 & 317.4):** *Flashing shall be installed behind siding and over ledger board.*
 - 1. *Fasteners for Pressure-preservative and fire-retardant-treated wood shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A 153.*
- ix. **Field Treatment (Section R317.1.1):** *Field-cut ends, notches, and drilled holes of pressure-preservative-treated wood shall be retreated in the field in accordance with AWPA M4.*

d. Connection details

- i. List location and type of joist hangers, post anchors, ledger boards, and connections to other structures

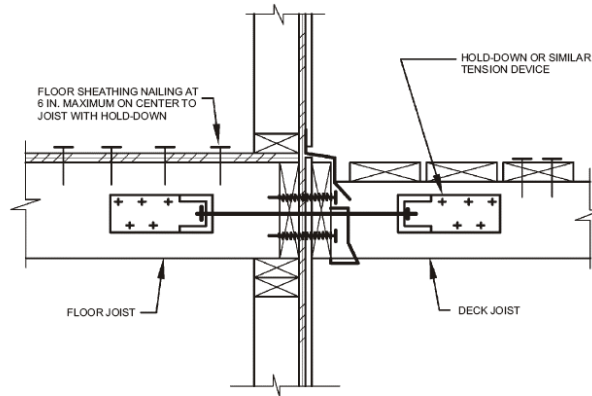
e. Floor Construction Section 502:

- i. **Decks R502.2.2:** Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members, connections to exterior walls or other framing members, shall be designed and constructed to resist uplift resulting from the full live load specified in Table R301.5 acting on the cantilevered portion of the deck.
- ii. **Deck Ledger Connection to Band Joist R502.2.2.1:** For decks supporting a total design load of 50 pounds per square foot (2394 Pa) [40 pounds per square foot (1915 Pa) live load plus 10 pounds per square foot (479 Pa) dead load], the connection between a deck ledger of pressure-preservative-treated Southern Pine, incised pressure-preservative-treated Hem-Fir or approved decay-resistant species, and a 2-inch (51 mm) nominal lumber band joist bearing on a sill plate or wall plate shall be constructed with 1/2-inch (12.7 mm) lag screws or bolts with washers in accordance with Table R502.2.2.1. Lag screws, bolts and washers shall be hot-dipped galvanized or stainless steel.

TABLE R502.2.2.1
FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER AND A 2-INCH NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST^{c, f, g}
(Deck live load = 40 psf, deck dead load = 10 psf)

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'
Connection details	On-center spacing of fasteners^{d, e}						
1/2 inch diameter lag screw with 15/32 inch maximum sheathing ^a	30	23	18	15	13	11	10
1/2 inch diameter bolt with 15/32 inch maximum sheathing	36	36	34	29	24	21	19
1/2 inch diameter bolt with 15/32 inch maximum sheathing and 1/2 inch stacked washers ^{b, h}	36	36	29	24	21	18	16

- iii. **Placement of lag screws or bolts in deck ledgers R502.2.2.1.1:** The lag screws or bolts shall be placed 2 inches (51 mm) in from the bottom or top of the deck ledgers and between 2 and 5 inches (51 and 127 mm) in from the ends. The lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger.
- iv. **Alternate deck ledger connections R502.2.2.2:** Deck ledger connections not conforming to Table R502.2.2.1 shall be designed in accordance with accepted engineering practice. Girders supporting deck joists shall not be supported on deck ledgers or band joists. Deck ledgers shall not be supported on stone or masonry veneer.
- v. **Deck lateral load connection R502.2.2.3:** The lateral load connection required by Section R502.2.2 shall be permitted to be in accordance with Figure R502.2.2.3. Hold-down tension devices shall be installed in not less than two locations per deck, and each device shall have an allowable stress design capacity of not less than 1500 pounds (6672 N).



For SI: 1 inch = 25.4 mm.

FIGURE 502.2.2.3
DECK ATTACHMENT FOR LATERAL LOADS

f. Miscellaneous projects

- i. **Electrical:** All overhead power lines must be located at least ten (10)-feet above the deck floor or be at least three (3)-feet horizontally away from the floor's surface.
 1. **Outdoor outlets E3901.7:** At least one receptacle outlet that is accessible while standing at grade level and located not more than 6 feet, 6 inches (1981 mm) above grade, shall be installed outdoors at the front and back of each dwelling unit having direct access to grade. Balconies, decks, and porches that are accessible from inside of the dwelling unit and that have a usable area of 20 square feet (1.86 m²) or greater shall have at least one receptacle outlet installed within the perimeter of the balcony, deck, or porch. The receptacle shall be located not more than 6 feet, 6 inches (1981 mm) above the balcony, deck, or porch surface.
 2. A separate electrical permit is required for new installations with two (2) sets of plans, (**See township website for a list of underwriters**).
 - ii. **Hot Tub:** Include location of the hot tub on plans with the deck drawing. For completion of the permit submit hot tub specifications and model number. Additional floor loading is required to place on a deck.
5. At the time of permit approval the applicant will be informed of approval and costs (**See Fee Schedule**). At this time contractors and subcontractors must be registered with Warrington Township or PA Attorney Generals Office fulfilling our requirements or the permit will not be released.
 6. For further assistance in submitting details or construction, see the following website, <http://www.awc.org/Publications/DCA/DCA6/DCA6.pdf> or visit your local library for construction books. Most computer generated plans for home centers do not meet required detail for applications.

Step 2: Inspections:

Building Inspections are required at specific phases during construction. Once the permit and plans are approved (a copy should remain on the site) follow the list of inspections, listed on the permit. To schedule an inspection call the permits office 2-4 days in advance of inspection time needed at 215-997-7501.

1. **(First Inspection)** Footings or pier holes are required to be inspected prior to placement of concrete.
2. **(Second Inspection)** Rough framing inspection is required, prior to placing deck boards.
3. **(Third Inspection)** A final inspection is required after all work is complete.
 - a. Once work is complete and construction has final approval the homeowner can expect a Use and Occupancy Permit (green permit) in the mail.
 - b. The U&O Permit should be kept for the homeowner's personal file for future records.