

**ROBERT G. CASSILLY**  
Harford County Executive

**ROBERT S. MCCORD**  
Director of Administration



**RICHARD C. TRUITT**  
Director of Inspections,  
Licenses and Permits

## **HARFORD COUNTY GOVERNMENT** **Residential Deck Construction Guidelines**

### **Based upon the 2018 International Residential Code Adoption - Bill 19-032**

This document is a synopsis of residential deck construction requirements as they relate to the currently adopted Harford County Building Code. This document is not all inclusive and is only intended to be a technical resource to individuals designing and constructing a deck in Harford County. It is highly recommended that individuals familiarize themselves with the provisions of the 2018 International Residential Code and Bill 91-032 prior to planning the project. The provisions of the Harford County Building Code are intended to be a minimum prescriptive based design. Deviations from the prescriptive provisions will require engineering that is deemed satisfactory to the jurisdiction prior to approval. Construction of roof coverings or imposing loads from the installation of hot tubs are not covered within this document.

### **GENERAL REQUIREMENTS**

#### **Submittal Documents**

Permit applications for deck must be accompanied by the following construction documents:

1. A dimensioned site plan of the property intended for the construction of the deck. All existing structures along with the proposed deck must be depicted along with property lines.
2. Construction plans for the proposed deck. Plans must provide at a minimum dimensions, sizes and spans for structural members, connection details, stairs, guards, handrails, and manufacturers documentation on materials not contained within the prescriptive provisions of the IRC.

#### **Design Criteria (Section R301)**

Decks shall be designed to accommodate the minimum dead and live loads listed

**R301.4 Dead load.** The actual weights of materials and construction shall be used for determining dead load with consideration for the dead load of fixed service equipment.

**R301.5 Live load.** The minimum uniformly distributed live load shall be as provided

Decks <sup>e</sup>	40 psf
Guards and Handrails <sup>d</sup>	200 psf <sup>h</sup>

Guard in-fill components<sup>f</sup> 50 psf<sup>h</sup>

**d.** A single concentrated load applied in any direction at any point along the top.

**e.** See Section R507.1 for decks attached to exterior walls.

**f.** Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.

**h.** Glazing used in handrail assemblies and guards shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

**R302.1 Minimum Separation from Property Lines.** Tables R302.1 (1) and R302.1 (2) as amended by Harford County require all portions of decks to be a minimum of 24 inches from the property line.

Note: More restrictive setback provisions may be contained within the Harford County Zoning Code. Prior to permit submittal you are encouraged to speak to a Customer Support Analysis to determine specific setback provisions for the proposed site.

*Harford County Celebrates 250 Years ~ 1773-2023*

410.638.3344 | 410.879.2000 | 220 South Main Street, Bel Air, Maryland 21014 | [www.harfordcountymd.gov](http://www.harfordcountymd.gov)

THIS DOCUMENT IS AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST

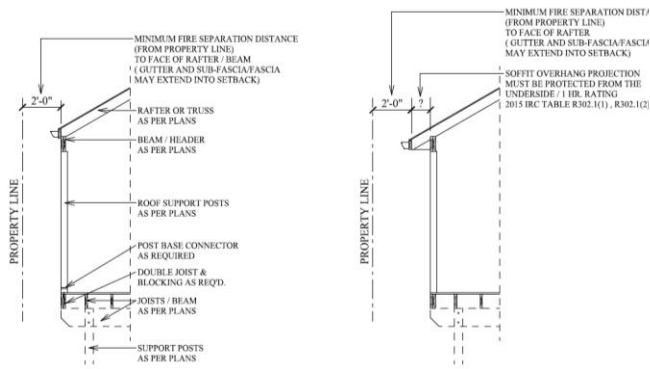


FIGURE #1

FIGURE #2

**Hazardous Locations for Glazing** (Section R308)

From time to time, a deck may be installed in locations that will cause existing glazing to now be considered in a hazardous location. All glazing considered in a hazardous location shall meet the provisions of the Code. The applicable sections are provided.

**R308.1 Identification.** Except as indicated in Section R308.1.1 each pane of glazing installed in hazardous locations as defined in Section R308.4 shall be provided with a manufacturer’s designation specifying who applied the designation, the type of glass and the safety glazing standard with which it complies, and that is visible in the final installation. The designation shall be acid etched, sandblasted, ceramic-fired, laser etched, embossed, or be of a type that once applied cannot be removed without being destroyed. A label shall be permitted in lieu of the manufacturer’s designation.

Exceptions: For other than tempered glass, manufacturer’s designations are not required provided that the building official approves the use of a certificate, affidavit or other evidence confirming compliance with this code.

**R308.3.1 Impact test.** Where required by other sections of the code, glazing shall be tested in accordance with CPSC 16 CFR 1201. Glazing shall comply with the test criteria for Category II unless otherwise indicated in Table R308.3.1(1).

**R308.4 Hazardous locations.** The locations specified in Sections R308.4.1 through R308.4.7 shall be considered to be specific hazardous locations for the purposes of glazing.

**R308.4.3 Glazing in windows.** Glazing in an individual fixed or operable panel that meets all of the following conditions shall be considered to be a hazardous location:

1. The exposed area of an individual pane is larger than 9 square feet (0.836 m<sup>2</sup>).
2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor.
3. The top edge of the glazing is more than 36 inches (914 mm) above the floor.
4. One or more walking surfaces are within 36 inches (914 mm), measured horizontally and in a straight line, of the glazing.

Exceptions:

1. Decorative glazing.
2. Where glazing is adjacent to a walking surface and a horizontal rail is installed 34 to 38 inches (864 to 965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and have a cross-sectional height of not less than 1 1/2 inches (38 mm).
3. Outboard panes in insulating glass units and other multiple glazed panels where the bottom edge of the glass is 25 feet (7620 mm) or more above grade, a roof, walking surfaces or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior.

**R308.4.4 Glazing in guards and railings.** Glazing in guards and railings, including structural baluster panels and nonstructural in-fill panels, regardless of area or height above a walking surface shall be considered to be a hazardous location.

**R308.4.4.1 Structural glass baluster panels.** Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by not less than three glass baluster panels, or shall be otherwise supported to remain in place should one glass baluster panel fail.

Exception: An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type.

**R308.4.6 Glazing adjacent to stairs and ramps.** Glazing where the bottom exposed edge of the glazing is less than 36 inches (914 mm) above the plane of the adjacent walking surface of stairways, landings between flights of stairs and ramps shall be considered to be a hazardous location.

Exceptions:

1. Where glazing is adjacent to a walking surface and a horizontal rail is installed at 34 to 38 inches (864 to 965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and have a cross-sectional height of not less than 1 1/2 inches (38 mm).
2. Glazing 36 inches (914 mm) or more measured horizontally from the walking surface.

**R308.4.7 Glazing adjacent to the bottom stair landing.** Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches (914 mm) above the landing and within a 60-inch (1524 mm) horizontal arc less than 180 degrees (3.14 rad) from the bottom tread nosing shall be considered to be a hazardous location.

Exception: Where the glazing is protected by a guard complying with Section R312 and the plane of the glass is more than 18 inches (457 mm) from the guard.

**Emergency Escape and Rescue Openings** (Section R310)

**R310.2.4 Emergency escape and rescue openings under decks and porches.** Emergency escape and rescue openings installed under decks and porches shall be fully openable and provide a path not less than 36 inches (914 mm) in height to a yard or court.

### **Deck Elevation at Doors** (Section R311)

**R311.3.2 Floor elevations at other exterior doors.** Doors other than the required egress door shall be provided with landings or floors not more than 7 3/4 inches (196 mm) below the top of the threshold.

Exception: A top landing is not required where a stairway of not more than two risers is located on the exterior side of the door, provided that the door does not swing over the stairway.

**R311.3.3 Storm and screen doors.** Storm and screen doors shall be permitted to swing over exterior stairs and landings.

### **Stairways** (R311.7)

**R311.7.1 Width.** Stairways shall be not less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. The clear width of stairways at and below the handrail height, including treads and landings, shall be not less than 31 1/2 inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are installed on both sides.

**R311.7.2 Headroom.** The headroom in stairways shall be not less than 6 feet 8 inches (2032 mm) measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway.

**R311.7.5.1 Risers.** The riser height shall be not more than 7 3/4 inches (196 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. At open risers, openings located more than 30 inches (762 mm), as measured vertically, to the floor or grade below shall not permit the passage of a 4-inch-diameter (102 mm) sphere.

**R311.7.5.2 Treads.** The tread depth shall be not less than 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

**R311.7.5.3 Nosings.** Nosings at treads, landings and floors of stairways shall have a radius of curvature at the nosing not greater than 9/16 inch (14 mm) or a bevel not greater than 1/2 inch (12.7 mm). A nosing projection not less than 3/4 inch (19 mm) and not more than 1 1/4 inches (32 mm) shall be provided on stairways. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch (9.5 mm) within a stairway.

Exception: A nosing projection is not required where the tread depth is not less than 11 inches (279 mm).

**R311.7.5.4 Exterior plastic composite stair treads.** Plastic composite exterior stair treads shall comply with the provisions of this section and Section R507.2.2.

**R311.7.6 Landings for stairways.** There shall be a floor or landing at the top and bottom of each stairway. The width perpendicular to the direction of travel shall be not less than the width of the flight served. For landings of shapes other than square or rectangular, the depth at the walk line and the total area shall be not less than that of a quarter circle with a radius equal to the required landing width. Where the stairway has a straight run, the depth in the direction of travel shall be not less than 36 inches (914mm).

**R311.7.7 Stairway walking surface.** The walking surface of treads and landings of stairways shall be sloped not steeper than one unit vertical in 48 inches horizontal (2-per-cent slope).

### **Handrails** (Section R311.7.8)

**R311.7.8 Handrails.** Handrails shall be provided on not less than one side of each flight of stairs with four or more risers.

**R311.7.8.1 Height.** Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm).

Exceptions:

1. The use of a volute, turnout or starting easing shall be allowed over the lowest tread.
2. Where handrail fittings or bendings are used to provide continuous transition between flights, transitions at winder treads, the transition from handrail to guard, or used at the start of a flight, the handrail height at the fittings or bendings shall be permitted to exceed 38 inches (965mm).

**R311.7.8.2 Handrail projection.** Handrails shall not project more than 4 1/2 inches (114 mm) on either side of the stairway.

Exception: Where nosings of landings, floors or passing flights project into the stairway reducing the clearance at passing handrails, handrails shall project not more than 6 1/2 inches (165 mm) into the stairway, provided that the stair width and handrail clearance are not reduced to less than that required.

**R311.7.8.3 Handrail clearance.** Handrails adjacent to a wall shall have a space of not less than 1 1/2 inches (38mm) between the wall and the handrails.

**R311.7.8.4 Continuity.** Handrails 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. Handrail ends shall be returned or shall terminate in newel posts or safety terminals.

Exceptions:

1. Handrail continuity shall be permitted to be interrupted by a newel post at a turn in a flight with winders, at a landing, or over the lowest tread.
2. A volute, turnout or starting easing shall be allowed to terminate over the lowest tread.

**R311.7.8.5 Grip size.** Required handrails shall be of one of the following types or provide equivalent grasp-ability.

1. Type I. Handrails with a circular cross section shall have an outside diameter of not less than 1 1/4 inches (32 mm) and not greater than 2 inches (51mm). If the handrail is not circular, it shall have a perimeter of not less than 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) and a cross section of not more than 2 1/4 inches (57 mm). Edges shall have a radius of not less than 0.01 inch (0.25 mm).

2. Type II. Handrails with a perimeter greater than 6 1/4 inches (160 mm) shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within 3/4 inch (19 mm) measured vertically from the tallest portion of the profile and have a depth of not less than 5/16 inch (8 mm) within 7/8 inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than 3/8 inch (10 mm) to a level that is not less than 1 3/4 inches (45 mm) below the tallest portion of the profile. The width of the handrail above the recess shall be not less than 1 1/4 inches (32 mm) and not more than 2 3/4 inches (70 mm). Edges shall have a radius of not less than 0.01 inch (0.25 mm).

**R311.7.8.6 Exterior plastic composite handrails.** Plastic composite exterior handrails shall comply with the requirements of Section R507.2.2.

#### **Guardrails** (Section R312)

**R312.1 Guards.** Guards shall be provided in accordance with Sections R312.1.1 through R312.1.4.

**R312.1.1 Where required.** Guards shall be provided for those portions of 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.

**R312.1.2 Height.** Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) in height as measured vertically above the adjacent walking surface or the line connecting the nosings.

Exceptions:

1. Guards on the open sides of stairs shall have a height of not less than 34 inches (864 mm) measured vertically from a line connecting the nosings.
2. Where the top of the guard serves as a handrail on the open sides of stairs, the top of the guard shall be not less

than 34 inches (864 mm) and not more than 38 inches (965 mm) as measured vertically from a line connecting the nosings.

**R312.1.3 Opening limitations.** Required guards shall not have openings from the walking surface to the required guard height that allow passage of a sphere 4 inches (102mm) in diameter.

Exceptions:

1. The triangular openings at the open side of 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.
2. Guards on the open side of stairs shall not have openings that allow passage of a sphere 4 3/8 inches (111 mm) in diameter.

**R312.1.4 Exterior plastic composite guards.** Plastic composite exterior guards shall comply with the requirements of Section R317.4.

#### **Ramps. (R311.8)**

**R311.8.1 Maximum slope.** Ramps serving the egress door required by Section R311.2 shall have a slope of not more than 1 unit vertical in 12 units horizontal (8.3-per-cent slope). Other ramps shall have a maximum slope of 1 unit vertical in 8 units horizontal (12.5 percent).

Exception: Where it is technically infeasible to comply because of site constraints, ramps shall have a slope of not more than 1 unit vertical in 8 units horizontal (12.5 percent).

**R311.8.2 Landings required.** There shall be a floor or landing at the top and bottom of each ramp, where doors open onto ramps, and where ramps change directions. The width of the landing perpendicular to the ramp slope shall be not less than 36 inches (914 mm).

**R311.8.3 Handrails required.** Handrails shall be provided on not less than one side of ramps exceeding a slope of one unit vertical in 12 units horizontal (8.33-percent slope).

**R311.8.3.1 Height.** Handrail height, measured above the finished surface of the ramp slope, shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm).

**R311.8.3.2 Grip size.** Handrails on ramps shall comply with Section R311.7.8.5.

**R311.8.3.3 Continuity.** Handrails where required on ramps shall be continuous for the full length of the ramp. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inches (38 mm) between the wall and the handrails.

#### **Additional Information**

- Section R507 for Exterior Decks is also provided as part of this document.
- Departmental Staff is available for additional assistance by contacting the Harford County Permit Center Office at (410) 638-3122.