City of Charlottesville, Virginia

Typical Deck Details
Based on the 2018 Virginia Residential Code

The design details in this document apply to residential decks only, 40 PSF. To use this packet, the framing is limited to single span, single level decks, and construction must not deviate from the details. The deck details shown here in this packet are the only pre-approved County details. A copy of your Red Stamped county approved plans must be on the job site and available during each required inspection. Failure to post the permit placard so that it is visible from the road and have plans on site WILL result in an automatic failed inspection.
Typical Deck Details

All residential decks constructed in City of Charlottesville must comply with the 2018 Virginia Residential Code (VRC) Section R507. This “deck packet” is a guide intended for general assistance showing the minimum deck code requirements. Any specific questions, concerns, or deviations from this packet must be shown on your submitted construction drawings. Submitted construction drawings will be reviewed for code compliance and must be approved prior to the start of any work.

Once approved, the applicant will be issued a copy of the permit with a copy of the approved plans. The permit copy must be clearly posted and seen from the road. Also, one copy of the red stamped approved plans must remain on the work site at all times for all inspections.

To apply for a deck-building permit, you will need to submit the following:

- A Building Permit Application – completely filled out. This can be done as a physical copy or on-line.
- Two copies of your recorded plat with the deck drawn in, detailing the distance from property lines and other features to verify zoning setbacks.
- Two sets of construction deck drawings with full details. For some simple decks, the last page of this packet may be used to assist with showing which details are to be used for construction.
- Full details implies, but is not limited to, all lumber sizes, dimensions, connections, spacing, spans, footings, piers, posts, beams, joists, decking, guards, stairs, railings, etc.
- List the licensed building contractor on the application.

The following information is assistance in preparing your construction deck drawings for plan review, permit approval, and construction. This “deck packet” does not cover every scenario and all plans are subject to review prior to approval. Any questions may be addressed by calling our office at 434-970-3318.
FOOTINGS

Footings shall be constructed in accordance with the requirements below:

- Footings shall bear on original solid ground – not backfill, unless it is engineered fill, approved by the building department.
- Grade for frost protection is a **minimum** footing depth of 18”. Minimum 12" of fill or concrete on post is required for no diagonal bracing.
- All footings shall be inspected by the Inspection Department for ground bearing conditions, (solid soil, proper dimensions per plans, all steel in place on chairs per plans) with no debris (leaves, roots, loose rocks, NO water), prior to placement of concrete.
- The size of each footing supporting a pier, column or post shall be based on the tributary area supported by each specific footing. 1500 PSF load bearing pressure is assumed for all footings unless there is a stamped geotechnical engineer report or field verifiable information using Table R401.4.1, which can be found in the 2018 VRC.
- The minimum footing size chart below paired with the tributary area description and illustration will help size the necessary footings for your specific deck. Each individual footing size can vary depending on the tributary area of that portion of the deck. If the tributary area is higher than the given number in the column, move to the next higher row for the footing size. **See example in the tributary area description below.**

**Tributary area description:** Using the picture below, imagine you were building a 10’ x 10’ deck attached to a house with a footing on each corner. You could calculate the tributary areas to determine footing size in the following way. First, draw a line dividing the deck into two halves between the house and the footings, 5’ by 10’ each. That load nearest the house 5’ by 10’ **[green]** is supported by the ledger board with the deck weight carried down through the foundation to the house footings. The remaining half of the deck is divided into half and is supported by the two outside corner footings, 5’ x 5’ **[red]** and 5’ x 5’ **[blue]**. Once the deck is divided into tributary areas using this method, you can now calculate the size of these tributary areas. The back half of the deck would be 10’ x 5’ or 50 sq. ft. with that load carried by the house foundation. The front two halves are 5’ x 5’ each or 25 sq. ft. per tributary area. Therefore, in this example, since the tributary area is 25 sq. ft., which is more than 20, you would use the 40 sq. ft. row in the chart. The footing would be 14”x14” square x 8” thick or 16” round x 8” thick.

<table>
<thead>
<tr>
<th>LIVE OR GROUND SNOW LOAD (psf)</th>
<th>TRIBUTARY AREA (sq. ft.)</th>
<th>load bearing value 1500</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Side of a square footing (Inches)</td>
<td>Diameter of a round footing (Inches)</td>
</tr>
<tr>
<td>20</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>40</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>60</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>80</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>100</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>120</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>140</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>160</td>
<td>28</td>
<td>31</td>
</tr>
</tbody>
</table>

- **PLEASE NOTE THAT THE MINIMUM FOOTING THICKNESS IN CITY OF CHARLOTTESVILLE IS 8”**
TRIBUTARY AREAS CONTINUED, MISS UTILITY AND PIER FOOTINGS

Tributary Areas Continued:

- Below is another example of tributary areas and the load points / load paths associated with the tributary area.
- In this example, the deck is cantilevered and shows how the areas would be separated and calculated when cantilevered as well as when the area is supported only by a center bearing column / post.

- Always call Miss Utility Prior to digging. Dial 811 and someone will discuss coming to your location for free within two business days to make sure your dig site is safe.
- The footing details below are an illustration of four types of pier footings that are pre-approved. Please be sure to list which type of footing will be used for your project. Both C and D will require diagonal deck bracing.

Without 12” Minimum embedment, Diagonal Bracing is required

Engineered post connection

12” Minimum embedment
POSTS AND POST TO BEAM CONNECTIONS

Posts and post to beam connections shall meet the requirements listed below:

- Where posts bear on concrete footings in accordance with Figure R507.3 on the previous page, lateral restraint shall be provided by engineered post connections or a minimum post embedment of 12 inches.
- Refer to Table R507.4 below for post connections based on the maximum height of the post from the grade to the underside of deck beam. Posts that are over the listed heights will require an engineered design.

<table>
<thead>
<tr>
<th>DECK POST SIZE</th>
<th>MAXIMUM HEIGHT(^a,b) (feet-inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 × 4</td>
<td>6 -9(^c)</td>
</tr>
<tr>
<td>4 × 6</td>
<td>8</td>
</tr>
<tr>
<td>6 × 6</td>
<td>14</td>
</tr>
<tr>
<td>8 × 8</td>
<td>14</td>
</tr>
</tbody>
</table>

- Deck beam bearing on posts prior to connections:
  The ends of the beams shall have not less than 1-1/2 inches of bearing on wood or metal and not less than 3 inches of bearing on concrete or masonry for the entire width of the beam. Where multiple span beams bear on intermediate posts, each ply must have full bearing on the post in accordance with Figure 507.5.1(1) below.

- Deck beam to deck post: shall be connected together either by a post cap or by a notched post to accommodate ALL PLIES of the deck beam and be bolted together in accordance with Figure R507.5.1(2) below.

PROHIBITED CONNECTION

DO NOT OVERNOTCH 4X4 POSTS FOR ONE PLY BEAMS

FIGURE R507.5.1(1) DECK BEAM TO DECK POST  FIGURE R507.5.1(2) NOTCHED POST-TO-BEAM CONNECTION
LEDGER BOARD CONNECTIONS TO HOUSE AND/OR BAND JOISTS

Ledger Boards:

Below are the general requirements for ledger boards that are positively connected to the house. Code compliance is critical to ensure the safety and structural stability of the deck. Ledger connections are the leading cause of deck failure.

- **Ledger boards shall not** be bolted through, lagged to or supported by or on stone or masonry veneer.
- The ledger board shall be attached in accordance with Table R507.9.1.3(1), Table R507.9.1.3(2), and Figure R507.9.1.3(1) below.
- Deck ledgers shall be a minimum of 2x8 pressure-preservative treated No.2 grade lumber.
- The ends of each joist and beam shall have not less than 1 1/2 inches of bearing on wood or metal and not less than 3 inches on concrete or masonry for the entire width of the beam. 2x2 ledger strips are not permissible. Also, deck beams shall not be hung or bear weight on a ledger board that is connected directly to the house.
- It is imperative that the building department can determine what the ledger will be fastened to during plan review. If this cannot be verified, the deck shall be considered and reviewed as a self-supporting structure.
- **LEDGER BOARDS SHALL NOT BE FASTENED TO OR SUPPORTED BY MANUFACTURED HOMES.**

<table>
<thead>
<tr>
<th>CONNECTION DETAILS</th>
<th>6' and less</th>
<th>6'1&quot; to 8'</th>
<th>8'1&quot; to 10'</th>
<th>10'1&quot; to 12'</th>
<th>12'1&quot; to 14'</th>
<th>14'1&quot; to 16'</th>
<th>16'1&quot; to 18'</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2-inch diameter lag screw with 1/2-inch maximum sheathing</td>
<td>30</td>
<td>23</td>
<td>18</td>
<td>15</td>
<td>13</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>On-center spacing of fasteners</td>
<td>30</td>
<td>23</td>
<td>18</td>
<td>15</td>
<td>13</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>1/2-inch diameter bolt with 1/2-inch maximum sheathing</td>
<td>36</td>
<td>36</td>
<td>34</td>
<td>29</td>
<td>24</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>1/2-inch diameter bolt with 1-inch maximum sheathing</td>
<td>36</td>
<td>36</td>
<td>29</td>
<td>24</td>
<td>21</td>
<td>18</td>
<td>16</td>
</tr>
</tbody>
</table>

**Table 507.9.1.3(1) Deck Ledger Connection to Band Joist**

<table>
<thead>
<tr>
<th>MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS</th>
<th>TOP EDGE</th>
<th>BOTTOM EDGE</th>
<th>ENDS</th>
<th>ROW SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ledger²</td>
<td>2 inches²</td>
<td>3/4 inch</td>
<td>2 inches²</td>
<td>1 5/8 inches²</td>
</tr>
<tr>
<td>Band Joist³</td>
<td>3/4 inch</td>
<td>2 inches</td>
<td>2 inches²</td>
<td>1 5/8 inches²</td>
</tr>
</tbody>
</table>

**Table 507.9.1.3(2) Placement of Lag Screws and Bolts in Deck Ledgers and Band Joists**

**Figure 507.9.1.3(1) Placement of Lag Screws and Bolts in Ledgers**
Deck lateral load connection.

The lateral load connection required by **Section R507.9.2** shall be permitted to be in accordance with **Figure R507.9.2(1)** or **R507.9.2(2)** below. Where the lateral load connection is provided in accordance with **Figure R507.9.2(1)**, hold-down tension devices shall be installed per the manufacturers installation instructions in not less than two locations per deck, within 24 inches of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1,500 pounds (6672 N). Where the lateral load connections are provided in accordance with **Figure R507.2.3(2)**, the hold-down tension devices shall be installed per the manufacturers installation instructions in not less than four locations per deck. Each device shall have an allowable stress design capacity of not less than 750 pounds (3336 N). The four locations shall be: two within 24” of the ends of the deck and two more staggered across the width of the deck to create equal sections of the ledger board.

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**FIGURE 507.9.2(1) DECK ATTACHMENT FOR LATERAL LOADS**

**NOTE:**

This detail is applicable where floor joists are parallel to deck joists.

**FIGURE R507.9.2(2) DECK ATTACHMENT FOR LATERAL LOADS**
Beams shall be designed and assembled in accordance with the requirements below:

- As shown in Figure R507.5 below, beam span is measured between the centerlines of the two adjacent posts and does not include the overhangs. Beams may overhang past the center of the post up to one-fourth of the actual beam span.
- Beam size is determined using Table R507.5 below. Flush beams shall be greater or equal to the joist depth.
- Beam plies shall be fastened with two rows of 10d nails minimum of 16 inches on center along each edge. This is for up to 3 plies. If beam exceeds 3 plies, an engineered design is required for attachment of all plies.
- Each beam member must be supported by minimum of 2 posts not exceeding maximum beam span.
- **ALL SPLICES:** Deck beams with splices shall be located at an interior post location and centered over posts.

![FIGURE 507.5 TYPICAL DECK BEAM SPANS](image)

<table>
<thead>
<tr>
<th>SPECIES*</th>
<th>SIZE**</th>
<th>DECK JOIST SPAN LESS THAN OR EQUAL TO: (feet – inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>1 - 2 × 6</td>
<td>4-11</td>
<td>4-0</td>
</tr>
<tr>
<td>1 - 2 × 8</td>
<td>5-11</td>
<td>5-1</td>
</tr>
<tr>
<td>1 - 2 × 10</td>
<td>7-0</td>
<td>6-0</td>
</tr>
<tr>
<td>1 - 2 × 12</td>
<td>8-3</td>
<td>7-1</td>
</tr>
<tr>
<td>2 - 2 × 6</td>
<td>8-11</td>
<td>8-1</td>
</tr>
<tr>
<td>2 - 2 × 8</td>
<td>8-9</td>
<td>8-7</td>
</tr>
<tr>
<td>2 - 2 × 10</td>
<td>10-4</td>
<td>9-0</td>
</tr>
<tr>
<td>2 - 2 × 12</td>
<td>12-2</td>
<td>10-7</td>
</tr>
<tr>
<td>3 - 2 × 6</td>
<td>8-2</td>
<td>7-5</td>
</tr>
<tr>
<td>3 - 2 × 8</td>
<td>10-10</td>
<td>9-6</td>
</tr>
<tr>
<td>3 - 2 × 10</td>
<td>13-0</td>
<td>11-3</td>
</tr>
<tr>
<td>3 - 2 × 12</td>
<td>15-3</td>
<td>13-3</td>
</tr>
<tr>
<td>3 × 6 or 2 - 2 × 6</td>
<td>6-6</td>
<td>4-8</td>
</tr>
<tr>
<td>3 × 8 or 2 - 2 × 8</td>
<td>6-10</td>
<td>5-11</td>
</tr>
<tr>
<td>3 × 10 or 2 - 2 × 10</td>
<td>6-4</td>
<td>8-3</td>
</tr>
<tr>
<td>3 × 12 or 2 - 2 × 12</td>
<td>9-8</td>
<td>8-5</td>
</tr>
</tbody>
</table>

*Southern pine

**Douglas fir-larch®, hem-fir®, spruce-pine-fir®, redwood, western cedars, ponderosa pine®, red pine®

![TABLE R507.5 DECK BEAM SPAN LENGTHS (feet – inches)](image)
Deck joists shall be designed in accordance with the requirements below:

- Joist span is measured from the centerlines of the bearing points at each joist end and does not include the overhangs.
- The ends of the joists shall have not less than 1 and 1/2 inches of bearing on wood or metal and not less than 3 inches of bearing on concrete or masonry over its entire width. Joist framing into the side of a beam or ledger board shall be supported by approved joist hangers.
- Joist ends and bearing locations shall be provided with lateral resistance to prevent rotation. Where lateral restraint is provided by joist hangers or blocking between joists, their depth shall not be less than 60 percent of the joist depth. Where lateral restraint is provided by rim joists, they shall be secured to the end of each joist with no fewer than three 10d (3-inch by 0.128-inch) nails or three No. 10x 3-inch-long wood screws.
- The maximum allowable spans for wood deck joists, as shown in Figure R507.6 below, shall be in accordance with Table R507.6 on the next page.
- The maximum joist cantilever shall be limited to one-fourth of the joist span or the maximum cantilever length specified in Table R507.6 on the next page, whichever is less.
- The maximum joist spacing shall be limited by the decking materials in accordance with Table R507.7 on the next page.

![Figure R507.6 Typical Deck Joist Spans](image)
DECK JOISTS AND DECKING

Deck Joists and Decking Continued:

**TABLE R507.6 DECK JOIST SPANS FOR COMMON LUMBER SPECIES (ft. - in.)**

<table>
<thead>
<tr>
<th>SPECIESa</th>
<th>SIZE</th>
<th>ALLOWABLE JOIST SPANb</th>
<th>MAXIMUM CANTILEVERc/d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SPACING OF DECK JOISTS (inches)</td>
<td>SPACING OF DECK JOISTS WITH CANTILEVERS (inches)</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>Southern pine</td>
<td>2 x 6</td>
<td>9-11</td>
<td>9-0</td>
</tr>
<tr>
<td></td>
<td>2 x 8</td>
<td>13-1</td>
<td>11-10</td>
</tr>
<tr>
<td></td>
<td>2 x 10</td>
<td>16-2</td>
<td>14-0</td>
</tr>
<tr>
<td></td>
<td>2 x 12</td>
<td>18-0</td>
<td>16-6</td>
</tr>
<tr>
<td>Douglas fir-larch, hem-fir, spruce-pine-fir</td>
<td>2 x 6</td>
<td>9-6</td>
<td>8-8</td>
</tr>
<tr>
<td></td>
<td>2 x 8</td>
<td>12-6</td>
<td>11-1</td>
</tr>
<tr>
<td></td>
<td>2 x 10</td>
<td>15-8</td>
<td>13-7</td>
</tr>
<tr>
<td></td>
<td>2 x 12</td>
<td>16-0</td>
<td>15-9</td>
</tr>
<tr>
<td>Redwood, western cedars, ponderosa pine, red pine</td>
<td>2 x 6</td>
<td>6-10</td>
<td>8-0</td>
</tr>
<tr>
<td></td>
<td>2 x 8</td>
<td>11-8</td>
<td>10-7</td>
</tr>
<tr>
<td></td>
<td>2 x 10</td>
<td>14-11</td>
<td>13-0</td>
</tr>
<tr>
<td></td>
<td>2 x 12</td>
<td>17-5</td>
<td>15-1</td>
</tr>
</tbody>
</table>

- Maximum allowable spacing for joists supporting decking shall be in accordance with Table R507.7 below. Wood decking shall be attached to each supporting member with not less than two 8d threaded nails or two No. 8 wood screws. Other approved decking or fastener systems shall be installed in accordance with the manufacturer's installation requirements.

**TABLE R507.7 MAXIMUM JOIST SPACING FOR DECKING**

<table>
<thead>
<tr>
<th>DECKING MATERIAL TYPE AND NOMINAL SIZE</th>
<th>MAXIMUM ON-CENTER JOIST SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Decking perpendicular to joist</td>
</tr>
<tr>
<td>1(\frac{1}{4})-inch-thick wood</td>
<td>16 inches</td>
</tr>
<tr>
<td>2-inch-thick wood</td>
<td>24 inches</td>
</tr>
<tr>
<td>Plastic composite</td>
<td>In accordance with Section R507.2</td>
</tr>
</tbody>
</table>

Wood or wood plastic composite decking shall be installed in accordance with the requirements below:

- Decking shall be nominal 2-inch-thick wood, 5/4-inch-thick wood, or wood/plastic composite material.
- Wood decking may be placed at a maximum angle of 45 degrees to the joists when permitted by size of decking material and spacing of joists.
- Wood/plastic composite decking may be placed at an angle but in accordance with manufacturer’s installations instructions.
- Refer to Table R507.7 above for maximum joist spacing based off the decking material that will be installed.
GUARDS

Guarding shall be installed in accordance with the requirements below:

- Guarding is required on decks that are constructed at a height of 30” or greater, measured from top of the walking surface to grade. See illustration below.
- If less than 30” and using no guard rail, that 30” from grade shall continue beyond the walking surface for a minimum of 36” beyond the outer band of the deck. See illustration below.
- Required guardrails at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36” tall measured vertically from the top of the walking surface to top of the railing.
- There shall be no openings that will allow the passage of a 4” sphere between them; with an exception of the triangular openings at the open side of stair, formed by the riser, tread and bottom rail of a guard, which shall not allow the passage of a sphere 6 inches.
- Guardrails must withstand 200 lbs. point load in any direction and infill must withstand 50 lbs. loading over a one square foot area.
- Guard systems with a valid evaluation report from an accredited listing agency are permitted.
- Engineered guardrail systems must be installed per the manufacturers installation instructions.

![Diagram of guard rail installation](image)

**DO NOT NOTCH 4X4 GUARD POSTS**

<table>
<thead>
<tr>
<th>4X4 POST TYP. DO NOT NOTCH</th>
<th>Typical spacing between posts 2x6 or 5/4 board</th>
<th>2x2 picket, typ. Max. span = 4”</th>
</tr>
</thead>
<tbody>
<tr>
<td>36” minimum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See guard post Attachment details

Openings shall not allow passage of 4” dia. sphere

Attach pickets at top and bottom with 1-#8 wood screw or 2-8d spiral shank nails
Stairs shall be constructed using the requirements below:

Stair stringers shall be in accordance with the following requirements:

- Stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.
- The clear width of stairways at and below the handrail height, including treads and landings, shall be not less than $31\frac{1}{2}$ inches where a handrail is installed on one side and 27 inches where handrails are installed on both sides.
- A flight of stairs shall not have a vertical rise larger than 151 inches between floor levels or landings.
- The riser height shall be not more than $8\frac{1}{4}$ inches. The riser shall be measured vertically between the leading edges of the adjacent treads as shown in the stair tread and riser illustration above. The greatest riser height within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ inch. Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees from the vertical. Open risers are permitted, provided that the openings located more than 30 inches, as measured vertically, to the floor or grade below do not permit the passage of a 4-inch-diameter sphere.
- The tread depth shall be not less than 9 inches. 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 $\frac{3}{8}$ inch.
- 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.
- The walking surface of treads and landings of stairways shall be level or sloped no steeper than one-unit vertical in 48 units horizontal (2.0-percent slope).
Handrails shall meet the requirements below:

- Handrails shall be provided on not less than one side of each flight of stairs with four or more risers.
- Handrail height shall be no less than 34 inches and no more than 38 inches, measured vertically from the top of the tread nosing.
- Handrails adjacent to a wall shall have a space of not less than 1 - 1/2 inches between the wall and the handrails.
- 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 return or shall terminate in newel posts.

Required handrails shall be of one of the following types or provide equivalent graspability:

1. **Type I.** Handrails with a circular cross section shall have an outside diameter of not less than 1 1/4 inches and not greater than 2 inches. If the handrail is not circular, it shall have a perimeter of not less than 4 inches and not greater than 6 1/4 inches and a cross section of not more than 2 1/4 inches. Edges shall have a radius of not less than 0.01 inch.

2. **Type II.** Handrails with a perimeter greater than 6 1/4 inches shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within 3/4 inch measured vertically from the tallest portion of the profile and have a depth of not less than 5/16 inch within 7/8 inch below the widest portion of the profile. This required depth shall continue for not less than 3/8 to a level that is not less than 1 3/4 inches below the tallest portion of the profile. The width of the handrail above the recess shall be not less than 1 1/4 inches and not more than 2 3/4 inches. Edges shall have a radius of not less than 0.01 inches.
Glazing adjacent to stairs and ramps.

- Glazing where the bottom exposed edge of the glazing is less than 36 inches 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.
- Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches above the landing and within a 60-inch horizontal arc less than 180 degrees from the bottom tread nosing shall be considered to be a hazardous location.
- To reduce injury due to an accidental impact, safety glazing in window and door glass is required when the existing house wall encloses any portion of the deck or acts as a barrier to stairs, landings, and areas at the top and bottom of the stairs.
- Individual panes, partially or wholly located in the hatched area shown in the example, must be safety-glazed. In the absence of safety glazing in a window adjacent a stairway, a stair guard must be constructed to separate the window from the stairway. In the absence of safety glazing in a window adjacent the 36-inch horizontal areas at the top or bottom of the stairs, a guard or horizontal rail must be installed at a height between 34 and 38 inches. The rail must meet the requirements of a stair handrail.

**FIGURE R308.4.7**

**HAZARDOUS GLAZING LOCATIONS AT BOTTOM STAIR LANDINGS**
Free-standing decks shall be in accordance with the requirements below or by an engineered design:

- Diagonal bracing shall be required for ALL decks over 8-foot-tall and bracing shall be installed at post-beam locations as shown in details below.
- Diagonal bracing shall be 2x members at any post size or 6x6 members at 6x6 posts only.
- Connections of the diagonal bracing shall be in accordance with the illustrations below.
- If free standing deck is taller than the maximum post heights set forth in 507.4 below, an engineered design shall be required.

### TABLE R507.4 DECK POST HEIGHT

<table>
<thead>
<tr>
<th>DECK POST SIZE</th>
<th>MAXIMUM HEIGHT&lt;sup&gt;a,b&lt;/sup&gt; (feet-inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 × 4</td>
<td>6 -9&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>4 × 6</td>
<td>8</td>
</tr>
<tr>
<td>6 × 6</td>
<td>14</td>
</tr>
<tr>
<td>8 × 8</td>
<td>14</td>
</tr>
</tbody>
</table>

Free Standing Deck Bracing examples:
FREE STANDING DECK BRACING EXAMPLES CONTINUED

1. Nails may be substituted with an equal number of the approved wood screws listed in TABLE 7.
2. Nails shall have a distance of ¾ inches to all edges and ¾ inches to the end of the bracing member.

Diagram: 
- Alternate bracing from front to back of posts.
- Bracing on front or rear of post.
- 6x6 - (2) 20d nails at all connections unless noted otherwise.
- Joist or beam.
- Toe-nail bracing to nailer with (2) 16d nails, each side.
- Attach 2x nailer plate to a min. of two joists with (2) 16d nails.
- At 4x4 or 4x6 post, at 6x6 post, at joist or beam, and at unaligned joist.

Diagram 2: 
- At post: Mitre/notch recess in bracing for fastener(s) with a 3" min. each side.
- At beam or joist: 3/4" lag screw or (2) 20d nails.
- Notch bracing and/or provide blocking to accommodate connection.

Diagram 3: 
- 2x blocking or rim joist.
- 2x blocking or rim joist.
- Joist overhang.
- Existing house foundation wall.
- Beam, posts.
- Diagonal bracing.
- Rim joist.
- When less than 5', footings must be at same elevation as existing house footing.
Complete your deck: A framing plan shows a bird’s eye view of the joist and beam layout, the location of the deck ledger board, diagonal bracing or hold down devices, posts, footings, and the type, size and spacing of the ledger board fasteners. **Please note that a framing plan drawing shall also be provided along with this deck form.** 
If this diagram does not match your deck type, please fill out all applicable boxes and submit with your own drawing.

**Deck to be:** Attached to house ________ or Free Standing ________

**Post size:**  4x4   4x6            6x6        8x8

**Joist:**

**Beam:**

**Deck Post spacing:** (Center-to-Center) __________________________

**Footings:** Square ________ x ________ x ________ thick  or  Round ________ x ________ thick

**Frost Depth:** – 18” deep __________                 20” deep ____________minimum to avoid diagonal bracing

**Post size:**  4x4    4x6     6x6    8x8     unless the deck is free standing

**Post/Beam Connection:** Notched Post __________ Connection to footing (see pg. 4) A ___ B ___ C ___ D ___

**Ledger Board attachment:** Siding removed __________ through Siding __________ Stone or Brick veneer? ________

If other than siding, deck needs to be Free Standing

**Deck to be:** Attached to house ________ or Free Standing ________. **Free Standing decks will require diagonal bracing.**

**Pressure Treated Ledger size:**  2X_________ Ledger Fastener Type ___________ Fastener Spacing _______” O.C.

**Type of house floor system:** Solid Wood_____ I-Joists______ Floor Trusses______ House Band must be engineered rim board or nominal solid lumber

**Deck Post spacing:** (Center-to-Center) ________ ________ ________

**Beam:** Size ________ Pies ________ Overhang ________ If overhang, Length (ft. – in) ________

**Beam:** Size ________ Pies ________ Overhang ________ If overhang, Length (ft. – in) ________

**Joist:** Size 2x_____ O.C. Spacing ________ Clear Span (ft. – in) ________ Type Pressure Treated or Other ________

**Joist cantilever ________, if cantilevered, Overhang length (ft.-in) ________

**Decking:** (wood or composite)___________ Size ______2x6, 5/4,  Perpendicular or diagonal _______________________

**Stairs:** ________ must have risers or 4”.

**Is glass within 5 feet of the top, middle, or bottom of the stairs? ________ If Yes, window may need protection
t

I __________ print name __________________ WILL ADHERE TO THIS DECK PACKET FOR DETAILS AS MY CONSTRUCTION PLAN.

________________ sign name ___________________