**GIRDER SPAN TABLES #2 SYP @ 40 psf LIVE LOAD, 30 psf SNOW LOAD**

**Exterior Girder Clear Spans**

<table>
<thead>
<tr>
<th>DECK WIDTH</th>
<th>2 x 6</th>
<th>2 x 8</th>
<th>2 x 10</th>
<th>2 x 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' (2 ply)</td>
<td>3'-6&quot;</td>
<td>4'-5&quot;</td>
<td>5'-1&quot;</td>
<td>5'-7&quot;</td>
</tr>
<tr>
<td>20' (3 ply)</td>
<td>3'-6&quot;</td>
<td>5'-2&quot;</td>
<td>6'-0&quot;</td>
<td>6'-8&quot;</td>
</tr>
<tr>
<td>20' (4 ply)</td>
<td>3'-6&quot;</td>
<td>6'-1&quot;</td>
<td>7'-3&quot;</td>
<td>7'-9&quot;</td>
</tr>
</tbody>
</table>

**Nominal Lumber Size**

<table>
<thead>
<tr>
<th>DECK WIDTH</th>
<th>2 x 6</th>
<th>2 x 8</th>
<th>2 x 10</th>
<th>2 x 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' (2 ply)</td>
<td>3'-0&quot;</td>
<td>3'-6&quot;</td>
<td>4'-6&quot;</td>
<td>5'-0&quot;</td>
</tr>
<tr>
<td>20' (3 ply)</td>
<td>2'-8&quot;</td>
<td>3'-0&quot;</td>
<td>4'-6&quot;</td>
<td>5'-0&quot;</td>
</tr>
<tr>
<td>20' (4 ply)</td>
<td>2'-8&quot;</td>
<td>3'-0&quot;</td>
<td>4'-6&quot;</td>
<td>5'-0&quot;</td>
</tr>
</tbody>
</table>

New Span charts were effective 01/01/2015.

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**What you need to know**

- **Handrails, Guards and General Construction**
  - **GUARDS** at a minimum 36" required per R312.1 with greater than 30' drop and opening limits per R312.3.4" where cannot pass through vertical pilots, or horizontal, and ornamental guard rails. Top rail and post to support 200 lbs with infill to meet 50 lbs per Table R301.4 and footnotes.

- **RAIL POSTS** cannot exceed 2x6. Guards shall be attached with 2 1/2" galv bolts with nut and washer to outer grade. 4 x4 post may not be notched for DO interpretation.

- **ATTACHMENT TO STRUCTURE** based upon all cladding types except brick veneer per AM104.1. Brick veneer per AM104.1, Masonry legs per AM103.2 or other per AM104.1.

- **DECKING** per AM103.2 for 2x5 and attached with 2 1/2x galv nails at each joist or approved screws. Other materials per MFG installation instructions based upon guards, O.C. spacing, alternates, material, attached per MFG installation instructions.

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**AM105**

Top of post mounted Girder

**DECKING** less than 48" from grade can use 3 1/2 to 6 toed nails for attachment of wood post.

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**AM105.1**

**MOUNTED TOE** USE OF 2x8

---

**AM111**

**RAIL POSTS** CANNOT EXCEED 2X6. GUARDS SHALL BE ATTACHED WITH 2 1/2" GALV BOLTS WITH NUT AND WASHER TO OUTER GRADE. **ATTACHMENT TO STRUCTURE** BASED UPON ALL CLADDING TYPES EXCEPT BRICK VENEER PER AM104.1. BRICK VENEER PER AM104.1. MASONRY LEGS PER AM103.2 OR OTHER PER AM104.1.

**DECKING** PER AM103.2 FOR 2X5 AND ATTACHED WITH 2 1/2X GALV NAILS AT EACH JOIST OR APPROVED SCREWS. OTHER MATERIALS PER MFG INSTALLATION INSTRUCTIONS BASED UPON GUARDS, O.C. SPACING, ALTERNATE MATERIAL, ATTACHED PER MFG INSTALLATION INSTRUCTIONS.

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**AM109.1**

**BRACES SHALL BE BETWEEN 45 AND 60 DEGREES.**

**MAX SPAN**

<table>
<thead>
<tr>
<th>JOIST SIZE</th>
<th>2 x 6</th>
<th>2 x 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot; OC</td>
<td>10'-3&quot;</td>
<td>10'-3&quot;</td>
</tr>
<tr>
<td>16&quot; OC</td>
<td>9'-4&quot;</td>
<td>9'-4&quot;</td>
</tr>
<tr>
<td>19.2&quot; OC</td>
<td>8'-6&quot;</td>
<td>8'-6&quot;</td>
</tr>
<tr>
<td>24&quot; OC</td>
<td>7'-2&quot;</td>
<td>7'-2&quot;</td>
</tr>
<tr>
<td>12&quot; OC</td>
<td>13'-6&quot;</td>
<td>13'-6&quot;</td>
</tr>
<tr>
<td>16&quot; OC</td>
<td>11'-10&quot;</td>
<td>11'-10&quot;</td>
</tr>
<tr>
<td>19.2&quot; OC</td>
<td>10'-10&quot;</td>
<td>10'-10&quot;</td>
</tr>
<tr>
<td>24&quot; OC</td>
<td>9'-8&quot;</td>
<td>9'-8&quot;</td>
</tr>
</tbody>
</table>

**AM109.3**

CALL RTAC FOR DETAILS

**AM109.2**

**FLOOR JOIST, CANTILEVERS ALLOWED FOR TABLE R502.3.3(1) #1 GRADE SYP**

**AM109.3**

**AM109**

**POST HEIGHT**

**FOOTERS** PER TABLE AM103.1. MINIMUM BASE OF FOOTERS 12" BELOW GRADE.

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**AM105.2**

A. GIANTS CAN BE DOCKED IN ACROSS JOISTS, NON-PLYerin, ONE SIDE OF JOIST OR 1" OF JOIST. GIANTS CAN BE INSTALLED IN A ROW THROUGH THE JOIST, NO MFG instanced. ONE GIANT IS ALLOWED TO PASS BETWEEN TWO JOISTS.

**AM109**

**2X4 GALV THROUGH BOLTS WITH NUTS AND WASHERS**

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If you have any questions about these specifications, the use of other materials, standards or the code requirements for your deck, please call the Residential Technical Answer Center at 980-314-CODE (2633) ext 2123 or Email: rtac@mecklenburgcountync.gov

**www.meckpermit.com**

This brochure is a publication of Mecklenburg County

**UPDATED 05/2017**

What you need to know before building an attached or self-supporting deck to your home.
**First Things First…**

*Everyone dreams of the “perfect deck”… But getting from Point A (planning and constructing it) to Point B (the dream deck) is not always as easy. This brochure will help you construct a safe, code-compliant “dream deck.”*

**But, first things first…** Be sure to obtain a building permit for the deck before you build it. For more information on how and where to obtain your building permit, call or visit Residential Services at 2145 Suttle Avenue, Charlotte, or simply call our Residential Technical Answer Center (RTAC) at 980-314-CODE (2633) or email us at rtac@mecklenburgcountync.gov. Office hours are Monday-Friday from 8 a.m. to 5 p.m.

**Why the permit and inspections?**

We are required to permit and inspect your deck to ensure that it complies with local zoning regulations and the North Carolina State Residential Building Code. Municipal zoning regulations establish minimum setbacks from property lines. The building code governs the method of construction, materials, means of support, attachment and requires safety features such as guard rails and hand rails. Decks require an open footing inspection, as well as a framing and a final inspection.

**Some Things to Think About…**

- **What type of lumber will I be using?**
  
  First, all lumber should be treated or decay resistant. We will assume that you will use pressure treated Southern Yellow Pine #2 (SYP). Girder/Header and Joist Spans for #2 SYP are partially listed on this brochure. Other species of lumber are acceptable for use. Please refer to the amendments of the current North Carolina Residential Code for complete lumber species, spacing, and allowable spans.

- **What distance will you span the joists?**
  
  Your joists must be sized to carry a 40 lb. per sq. ft. live load. In some instances, a girder is used to help meet this design criteria and to allow use of smaller individual floor joists (See Joist Span Tables on other side of this brochure).

- **How high off the ground will the floor of your deck be?**
  
  If the walking surface of the deck exceeds 30 inches from finished grade, your deck must be surrounded by guard rails which are a minimum of 36 inches in height. The steps for the deck must also have a hand rail on one side if there are 4 or more individual risers (a riser is considered any portion of the stair that requires a vertical motion). If the steps have a total rise of 30’ or more above ground level, a combination guard rail/hand rail must be provided on open sides of the steps. See AM105 and AM111.

- **Bracing your deck for lateral support**
  
  If your deck will be 48’ or more above the ground (measured from top of footing to deck floor), bracing for lateral support is required. Self supported decks of ANY height require lateral bracing. Several methods of bracing are acceptable depending on whether the deck is free standing or attached (See AM109.1 and AM109.3). Post embedment can be used in lieu of knee braces or diagonal bracing per AM109.1.3 of the 2012 NCRC. Consult with the Residential Technical Answer Center at 980-314-CODE (2633) to select a method that meets code and will work best for your project.

Still have questions?

*If you’re in doubt, reach out — 980-314-CODE (2633) ext. 2123*

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**Some Things to Think About… (Continued)+**

- **How deep and how large must the footings under support posts be?**
  
  Each deck support post must be supported by concrete footings. The size of each footing is determined by the tributary load imposed on it. See the diagram below for an explanation of tributary load. Footing must be dug down into undisturbed soil to a minimum depth of **12 INCHES BELOW FINISHED GRADE**.

**Table AM102.1 Footing Table**

<table>
<thead>
<tr>
<th>SIZE (inches)</th>
<th>Precast Footings</th>
<th>Pour-in-Place Footings</th>
<th>TRIBUTARY AREA (square feet)</th>
<th>THICKNESS (inches)</th>
<th>Precast</th>
<th>Cast-in-Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 X 16</td>
<td>12 X 12</td>
<td>16 X 16</td>
<td>8 X 16</td>
<td>12 X 12</td>
<td>16 X 16</td>
<td>8 X 16</td>
</tr>
<tr>
<td>12 X 12</td>
<td>16 X 16</td>
<td></td>
<td></td>
<td>16 X 16</td>
<td>12 X 12</td>
<td>16 X 16</td>
</tr>
<tr>
<td>16 X 16</td>
<td>20 X 16</td>
<td></td>
<td></td>
<td>20 X 16</td>
<td>16 X 16</td>
<td>16 X 16</td>
</tr>
</tbody>
</table>

- a. Footing values are based on single floor and roof loads;
- b. Support post must rest in center 1/3 of footing;
- c. Top of footer shall be level for full bearing support of post

**Some Things to Think About… (Continued)**

- **Will your deck be attached to the residence for support or will it be a “self-supported” deck?**
  
  If attached, this means the deck band will be connected to the house band and that your deck will be supported partially by the existing foundation of the house. Attached decks must be connected to the band or rim joist of the house by 5/8 inch galvanized through bolts. Also, the existing siding (except brick) which covers the house band must be removed so that the deck band makes full contact with the house band. Non-aluminum, corrosion-resistant flashing must be installed between the house and deck bands (see flashing detail AM103) to prevent water from rotting the house band. See diagram below for detail.

**AM107.1 Floor decking.**

Floor decking shall be No. 2 grade treated Southern Pine or equivalent. The minimum floor decking thickness shall be as follows:

- 12" OC: 1" S4S
- 16" OC: 1" T&G
- 19.2" OC: 1-1/4" S4S
- 24" OC: 2" S4S

Important Note:
