Appendix M

Wood Decks
(Entire section is a NC amended appendix)

Section AM101  General
AM101.1 General. A deck is an exposed exterior wood floor structure which may be attached to the structure or freestanding. Roofed porches (open or screened-in) may be constructed using these provisions.

AM101.2 Deck design. Computer deck design programs may be accepted by the Code Enforcement Official.

Section AM102  Footers
AM102.1 Footers. Support post shall be supported by a minimum footing per Figure AM102 and Table AM102.1 Minimum footing depth shall be 12” below finished grade per R403.1.4. Tributary area is calculated per Figure AM102.1.

Section AM103  Flashing
AM103.1 Flashing. When attached to a structure, the structure to which attached shall have a treated wood band for the length of the deck, or corrosion-resistant flashing shall be used to prevent moisture from coming in contact with the untreated framing of the structure. Aluminum flashing shall not be used in conjunction with deck construction. The deck band and the structure band shall be constructed in contact with each other except on brick veneer structures and where plywood sheathing is required and properly flashed (when plywood is required, use pressure preservatively treated plywood). Siding shall not be installed between the structure and the deck band. If attached to a brick structure, neither flashing nor a treated band for the brick structure is required. In addition, the treated deck band shall be constructed in contact with the brick veneer.

Flashing shall be installed per Figure AM103.

Figure AM102

Table AM102.1

<table>
<thead>
<tr>
<th>Size (inches)</th>
<th>Tributary Area</th>
<th>Thickness (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A x A</td>
<td>B x C</td>
<td></td>
</tr>
<tr>
<td>8 x 16</td>
<td>8 x 16</td>
<td>36</td>
</tr>
<tr>
<td>12 x 12</td>
<td>12 x 12</td>
<td>40</td>
</tr>
<tr>
<td>16 x 16</td>
<td>16 x 16</td>
<td>70</td>
</tr>
<tr>
<td>----</td>
<td>16 x 24</td>
<td>100</td>
</tr>
<tr>
<td>24 x 24</td>
<td></td>
<td>150</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 footer
c. Top of footer shall be level for full bearing support of post

2009 NC Wood Deck Code
Figure AM102.1

Tributary area of shaded section on free standing deck shown is 5'x6'=30 sq. ft. Code will require a minimum footer of 8”x 16” per Table AM102.1

Figure AM102.1

Treated bands on both the house and deck can be in contact with no flashing

Deck

House

No flashing- treated

Flashing shall be between bands for full depth and kick out underneath if siding below. Flashing shall extend underneath siding above a min. 2”.

Section AM104

Deck attachment

AM104.1 Deck Attachment. When a deck is supported at the structure by attaching the deck to the structure, the following attachment schedules shall apply for attaching the deck band to the structure.

AM104.1.1 All Structures Except Brick Veneer Structures:

Fasteners  | 8’ Max Joist Span | 16’ Max Joist Span |
---|---|---|
5/8” Hot Dipped Galv. Bolts with nut and washer | 1 @ 3'-6” o.c.  | 1 @ 1’-8” o.c. |
and 12d Common Hot Dipped Galv. Nails | and | 1 @ 2’-8” o.c. |
| 2 @ 8” o.c. | 3 @ 6” o.c. | 3 @ 16” o.c |

AM104.1.2 Brick Veneer Structures

<table>
<thead>
<tr>
<th>Fasteners</th>
<th>8’ Max Joist Span</th>
<th>16’ Max joist Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8” Hot Dipped Galv. Bolts with Nut and Washer</td>
<td>1@ 2’-4” o.c.</td>
<td>1@ 1’-4”o.c.</td>
</tr>
</tbody>
</table>

a. Attachment interpolation between 8’&16’ is allowed
b. Minimum edge distance for bolts is 2 ½ inches

AM104.1.3 Masonry Ledge Support

If the deck band is supported by a minimum of ½ inch masonry ledge along the foundation wall, 5/8 inch hot dipped galvanized bolts with washers spaced at 48 inches o.c. may be used for support.

AM104.1.4 Other means of support

Joist hangers or other means of attachment may be connected to house band and shall be properly flashed

2009 NC Wood Deck Code
Section AM105

**AM105.1 Girder Support & Span.** Girders shall bear directly on support post with post attached at top to prevent lateral displacement or be connected to the side of posts with two 5/8 inch hot dipped galvanized bolts with nut and washer. Girder spans are per Table R502.5 (1&2). Girder support may be installed per Figure AM105 for top mount; Figure AM105.1 for side mount and Figure AM105.2 for split girder detail. Girders may also be cantilevered off ends of support post no more than 1 joist spacing or 16” whichever is greater per Figure AM105.3.

**Figure AM105**

- **Top mount/flush**
- **Side mount dropped girder**
- **Split girder detail**

Decks less than 48” from grade can use 3-16d toenailed for attachment of wood post.

**Section AM106**

**M106.1 Joist Spans & Cantilevers.** Joists spans shall be based upon Table R502.3.1(2) with 40 lbs per sq. ft. live load and 10 lbs per sq. ft. dead load. Floor joists for exterior decks may be cantilevered per Table R502.3.3 (1).

<table>
<thead>
<tr>
<th>Spacing</th>
<th>2x6</th>
<th>2x8</th>
<th>2x10</th>
<th>2x12</th>
</tr>
</thead>
<tbody>
<tr>
<td>12”</td>
<td>10-9</td>
<td>14-2</td>
<td>18-0</td>
<td>21-9</td>
</tr>
<tr>
<td>16”</td>
<td>9-9</td>
<td>12-10</td>
<td>16-1</td>
<td>18-10</td>
</tr>
<tr>
<td>19.2”</td>
<td>9-2</td>
<td>12-1</td>
<td>14-8</td>
<td>17-2</td>
</tr>
<tr>
<td>24”</td>
<td>8-6</td>
<td>11-0</td>
<td>13-1</td>
<td>15-5</td>
</tr>
</tbody>
</table>

Partial reprint of Table R502.3.1(2), #2 SYP only joist spans

**Figure AM105.1**

Max. 16” girder cantilever at ends or 1 rim/band joist whichever is less

**Figure AM105.2**

Split girder limited to floor loads only and cantilever girder ends allowed per AM105.3

**Figure AM105.3**

Cantilevered girder is limited to floor loads only, roof loads prohibited on cantilevered girder application

2009 NC Wood Deck Code
**Section AM107**

**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:

<table>
<thead>
<tr>
<th>Joist Spacing</th>
<th>Decking (nominal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12” o.c.</td>
<td>1” S4S</td>
</tr>
<tr>
<td>16” o.c.</td>
<td>1” T&amp;G</td>
</tr>
<tr>
<td>19.2 o.c.</td>
<td>1-1/4” S4S</td>
</tr>
<tr>
<td>24”-36” o.c.</td>
<td>2” S4S</td>
</tr>
</tbody>
</table>

**Section AM108**

**AM108.1 Post height.** Maximum height of Deck support posts as follows:

<table>
<thead>
<tr>
<th>Post size</th>
<th>Max. Post Height a,b,c</th>
</tr>
</thead>
<tbody>
<tr>
<td>4x4</td>
<td>8’-0”</td>
</tr>
<tr>
<td>6x6</td>
<td>20’-0”</td>
</tr>
</tbody>
</table>

*a* This table is based on No. 2 Southern Pine posts.  
*b* From top of footing to bottom of girder  
*c* Decks with post heights exceeding these requirements shall be designed by a registered design professional

**Section AM109**

**AM109.1 Deck bracing.** Decks shall be braced to provide lateral stability. The following are acceptable means to provide lateral stability.

**AM109.1.1.** When the deck floor height is less than 4’-0” above finished grade per Figure AM109 and the deck is attached to the structure in accordance with Section AM104, lateral bracing is not required.

**AM109.1.2.** 4x4 wood knee braces may be provided on each column in both directions. The knee braces shall attach to each post at a point not less than 1/3 of the post length from the top of the post, and the braces shall be angled between 45 degrees and 60 degrees from the horizontal. Knee braces shall be bolted to the post and the girder/double band with one 5/8 inch hot dipped galvanized bolt nut and washer at both ends of the brace per Figure AM109.1

**AM109.1.3.** For freestanding decks without knee braces or diagonal bracing, lateral stability may be provided by embedding the post in accordance with Figure AM109.2 and the following:

<table>
<thead>
<tr>
<th>Post size</th>
<th>Max. Tributary Area</th>
<th>Max. Post Height</th>
<th>Embedment Depth</th>
<th>Concrete Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>4x4</td>
<td>48 SF</td>
<td>4’-0”</td>
<td>2’-6”</td>
<td>1’-0”</td>
</tr>
<tr>
<td>6x6</td>
<td>120 SF</td>
<td>6’-0”</td>
<td>3’-6”</td>
<td>1’-8”</td>
</tr>
</tbody>
</table>

**Figure AM109**

Freestanding decks requiring bracing shall be installed in both directions off each post

Decks attached to structure require diagonal bracing only at outside girder line parallel with structure

**Figure AM109.1**

Decks attached to structure can also be braced on exterior girder line with embedment option

**Figure AM109.2**

Max post height for 4x4 is 4’ from top of footer, 6’ for 6x6

2009 NC Wood Deck Code
AM109.1.4 2x6 diagonal vertical cross bracing may be provided in two perpendicular directions for freestanding decks or parallel to the structure at the exterior column line for attached decks. The 2x6’s shall be attached to the posts with one 5/8 inch hot dipped galvanized bolt with nut and washer at each end of each bracing member per Figure AM109.3.

AM109.1.5 For embedment of piles in Coastal Regions, see Chapter 45.

Section AM110

AM110.1 Stairs shall be constructed per Figure AM110. Stringer spans shall be no greater than 7’ span between supports. Spacing between stringers shall be based upon decking material used per AM107.1. Each Stringer shall have minimum 3 ½” between step cut and back of stringer. All stringers supported at top on suspended headers that support stringers at the top shall be attached with 3/8” Galv bolts with nuts and washers.

Section AM111

AM111.1 Handrails, Guards and General.
Deck handrails, guards and general construction shall be per Figure AM111.

Footers per Table AM102.1. Minimum base of footers 12” below grade.

Lateral Bracing per AM 109. AM109.1.1 height required; AM109.1.2 knee bracing; AM109.1.3 freestanding embedment; AM109.1.4 diagonal bracing; AM109.1.5 Coastal embedment.

Exterior Girder Clear Spans

<table>
<thead>
<tr>
<th>Deck Width</th>
<th>Nominal Lumber Size</th>
<th>2x6</th>
<th>2x8</th>
<th>2x10</th>
<th>2x12</th>
</tr>
</thead>
<tbody>
<tr>
<td>20’ (2ply)</td>
<td>3-11</td>
<td>5-0</td>
<td>6-1</td>
<td>7-1</td>
<td></td>
</tr>
<tr>
<td>20’ (3ply)</td>
<td>----</td>
<td>6-3</td>
<td>7-7</td>
<td>8-10</td>
<td></td>
</tr>
<tr>
<td>20’ (4ply)</td>
<td>----</td>
<td>8-9</td>
<td>10-2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Partial reproduction of Table R502.5(1) at 30 ground snow load and roof ceiling and 1 clear span floor. Deck width is 20’ or less measured in the direction of joists span. Splices in plys must break over bearing supports.
Figure AM111.1

WALKWAYS OVER DUNES OR BERMS IN OCEAN HAZARD AREAS

For SI: 1 inch = 25.4, 1 foot = 304.8 mm.

* Posts for walkways over dunes or berms shall be embedded a minimum depth of 6'-0" and post heights shall be limited to 5'-0" above grade for 4' x 4' and 10'-0" above grade for 6' x 6'. Walkways or portions of walkways over 4'-0" in width, shall comply with the requirements of Chapters 44 and 45. Maximum walkway surface height is 30'-0" above grade without guard rails.

**Walkway stair runs can be greater than 12'-0" without a landing.