

Currituck County Planning & Inspections Guidelines for Residential Decks



WHY DO YOU NEED A BUILDING PERMIT AND INSPECTIONS?

To ensure that the deck will comply with local zoning regulations and the North Carolina State Residential Building Code. The county zoning regulations establish minimum setbacks that must be maintained from property lines. The building code governs the method of construction, materials, means of support, attachment and may require safety features such as guard rails and handrails. See the attachment “Appendix M Wood Decks”, from the 2009 Residential Building Code for building code information.

You may also be required to install a new electrical outlet when you build a deck:
EFFECTIVE JUNE 1, 2008, SECTION 301-52(E3) OF THE 2008 NATIONAL ELECTRICAL CODE REQUIRES THAT ALL BALCONIES, DECKS, AND PORCHES THAT ARE ACCESSIBLE FROM INSIDE THE DWELLING UNIT HAVE AT LEAST ONE GFCI RECEPTACLE OUTLET INSTALLED WITHIN THE PERIMETER OR FOOTPRINT OF THE BALCONY, DECK, OR PORCH.
See the attached memo for additional information regarding this requirement.

This requirement does not apply to balconies, decks, or porches with a useable area of less than twenty (20) square feet.

Memorandum

To: The General Public and all Contractors working
in Currituck County

From: Spencer Castello, Director of Inspections

Date: 1/28/09

Re: Outdoor electrical outlets for balconies, decks, and porches

Effective June 1, 2008, Section 301-52 (E3) of the 2008 National Electrical Code requires that all balconies, decks, and porches that are accessible from inside the dwelling unit have at least one GFCI receptacle outlet installed within the perimeter or footprint of the balcony, deck, or porch. The receptacle may also be located on an adjacent wall within the footprint, but shall not be located more than 6.5 feet above the balcony, deck, or porch surface.

Please note that any existing outlet(s) outside of the perimeter of the balcony, deck, or porch **will not** meet this requirement.

This requirement does not apply to balconies, decks or porches with a usable area of less than 20 square feet.

If you have any questions regarding this requirement, please contact a Building Inspector at 252-232-3378 or Mr. Ron Chilton (www.ronchilton.net) with the North Carolina Department of Insurance at 919-661-5880.

Things To Think About...

1. Will your deck be attached to the residence for support or will it be a “free standing” 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. Galvanized metal flashing must be installed between the house and deck bands to prevent water from rotting the house band.

See the attachment “Appendix M Wood Decks”, from the 2009 Residential Building Code for building code information and diagrams.

2. What distance will you span between supports?

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 the attachment “Appendix M Wood Decks”, from the 2009 Residential Building Code for building code information and diagrams.

3. How high off the ground will the floor of your deck be?

If the walking surface of the deck is more than 30 inches off of the ground, your deck must be surrounded by guard rails which are a minimum of 36 inches in height around the deck. The steps for the deck must also have guard rails on both sides of open stairs a minimum of 34” in height measured from stair nosing. The guard rail can serve as a handrail also as long as it is between 34” –38” measured from nosing, If there are 4 or more individual risers (spaces between steps) and the steps have a total rise of 30” or less above ground level, a hand rail must also be provided on one side of the steps, hand rails can be between 30”-38” in height measured from nosing. Maximum handrail size is 3 ½” See diagram below.

See the attachment “Appendix M Wood Decks”, from the 2009 Residential Building Code for building code information and diagrams.

4. Bracing your deck for lateral support.

If your planned deck is attached/free standing and over 4’ above the ground, bracing for lateral support is required. Several methods of bracing are acceptable depending on whether the deck is free standing or attached.

4x4 wood knee braces may be provided on each column in both directions. The knee braces shall attach to each post 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 girder with one 5/8” hot dipped galvanized bolt at each end of the brace.

2x6 diagonal vertical cross bracing may be provided in two perpendicular directions for free standing 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” hot dipped galvanized bolt at each end of the bracing member.

See the attachment “Appendix M Wood Decks”, from the 2009 Residential Building Code for building code information and diagrams.

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.

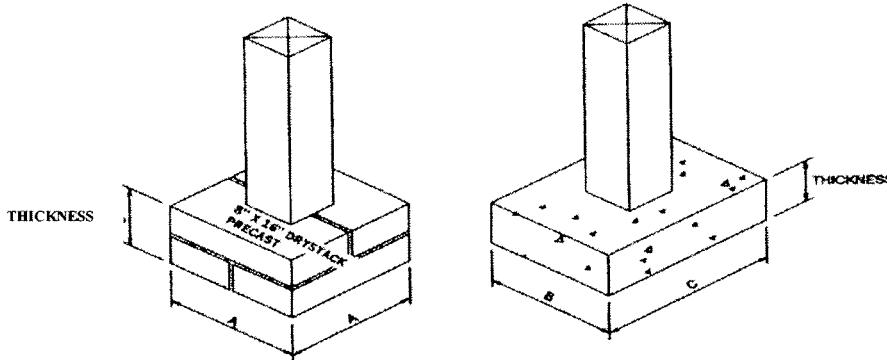


Figure AM102

Table AM102.1

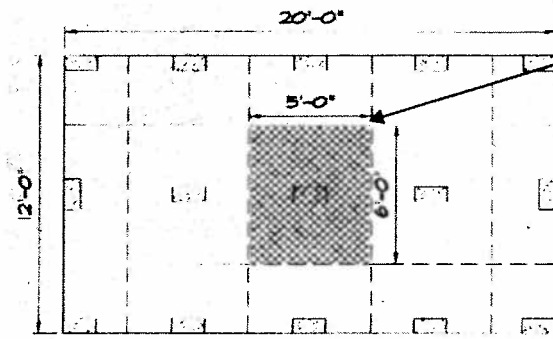
Footing table ^{a, b, c}

Size (inches)		Tributary Area (Sq. Ft.)	Thickness (inches)	
A x A	B x C		Precast	Cast-in-place
8 x 16	8 x 16	36	4"	6"
12 x 12	12 x 12	40	4"	6"
16 x 16	16 x 16	70	8"	8"
----	16 x 24	100	--	8"
	24 x 24	150	--	8"

- 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

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 preservative 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.



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

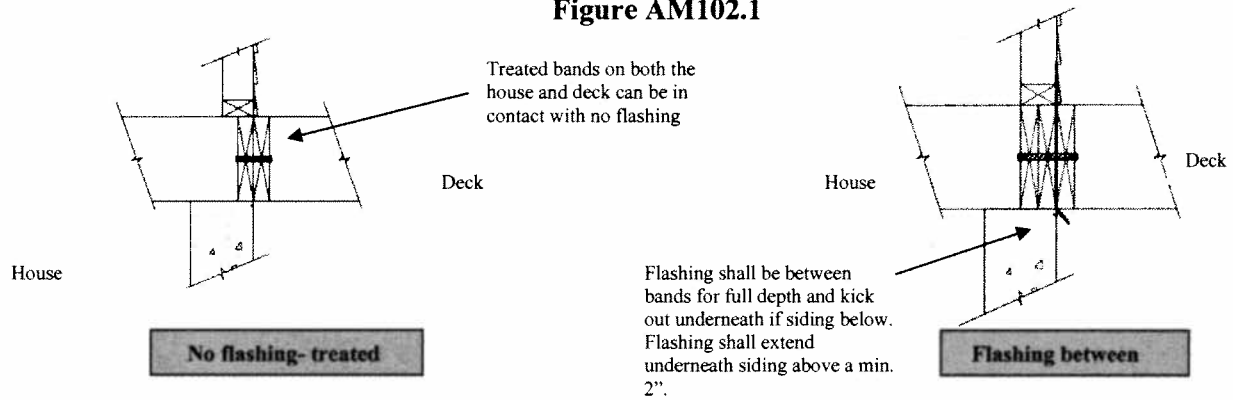


Figure AM103

**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 ^a	16' Max Joist Span ^a
5/8" Hot Dipped Galv. Bolts with nut and washer ^b	1 @ 3'-6" o.c.	1 @ 1'-8" o.c.
and	and	and
12d Common Hot Dipped Galv. Nails ^c	2 @ 8" o.c.	3 @ 6" o.c.

- a. Attachment interpolation between 8' & 16' joists span are allowed
- b. Minimum edge distance for bolts is 2 1/2 inches
- c. Nails must penetrate the supporting structure band a minimum of 1 1/2 inches

AM104.1.2 Brick Veneer Structures

Fasteners	8' Max Joist Span ^a	16' Max joist Span ^a
5/8" Hot Dipped Galv. Bolts with Nut and Washer ^b	1 @ 2'-4" o.c.	1 @ 1'-4" o.c.

- a. Attachment interpolation between 8' & 16' is allowed
- b. Minimum edge distance for bolts is 2 1/2 inches

AM104.1.3 Masonry Ledge Support

If the deck band is supported by a minimum of 1/2 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

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.

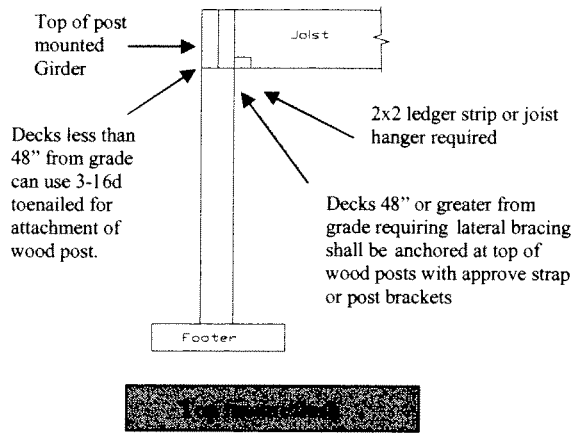


Figure AM105

Spacing	2x6	2x8	2x10	2x12
12"	10-9	14-2	18-0	21-9
16"	9-9	12-10	16-1	18-10
19.2"	9-2	12-1	14-8	17-2
24"	8-6	11-0	13-1	15-5

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

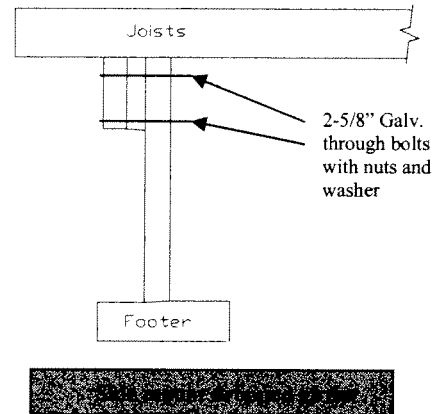


Figure AM105.1

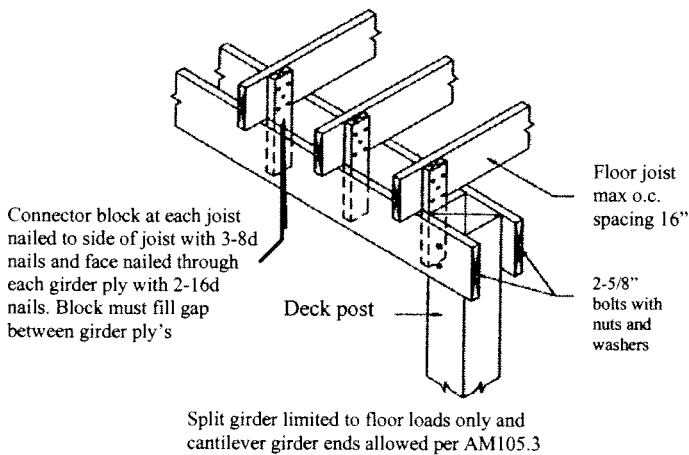


Figure AM105.2

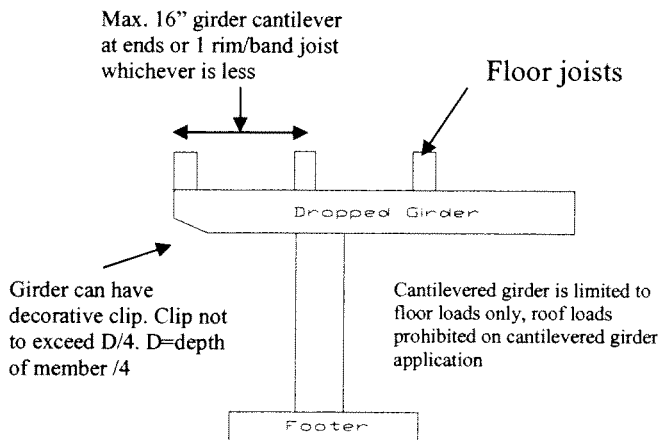
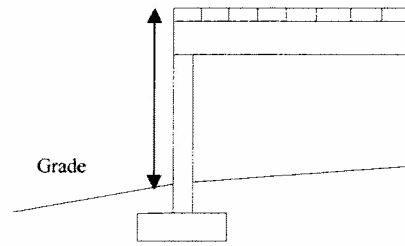


Figure AM105.3

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:

Joist Spacing	Decking (nominal)
12" o.c.	1" S4S
16" o.c.	1" T&G
19.2 o.c.	1-1/4" S4S
24"-36" o.c.	2" S4S



Less than 4' (decking to grade) and attached to structure no bracing required

Figure AM109

Section AM108

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

Post size ^a	Max. Post Height ^{b,c}
4x4	8'-0"
6x6	20'-0"

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

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

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 with one 5/8 inch hot dipped galvanized bolt with 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:

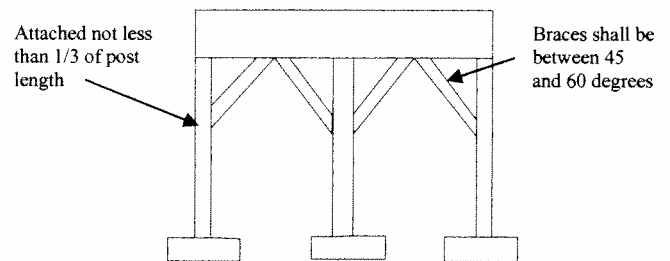


Figure AM109.1

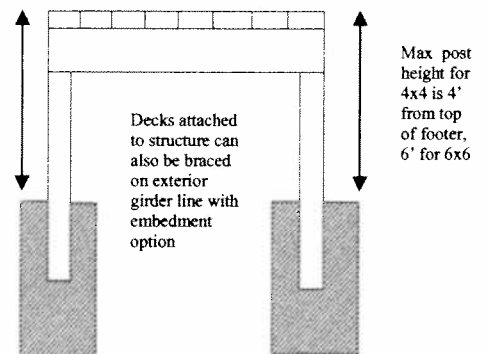


Figure AM109.2

Post size	Max. Tributary Area	Max. Post Height	Embedment Depth	Concrete Diameter
4x4	48 SF	4'-0"	2'-6"	1'-0"
6x6	120 SF	6'-0"	3'-6"	1'-8"

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.

If span between post is greater than 7' center blocking and 1-5/8" bolt with nut and washer required

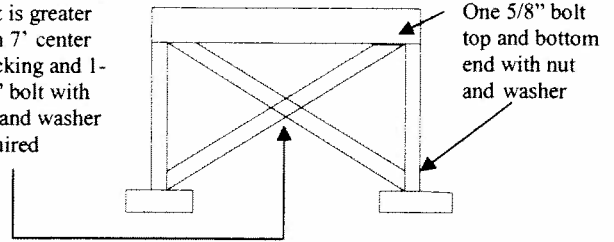


Figure AM109.3

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 1/2" between step cut and back of stringer. All stringers supported at top on suspended headers shall be attached with 3/8" Galv bolts with nuts and washers.

Max. spacing between stringers 36".

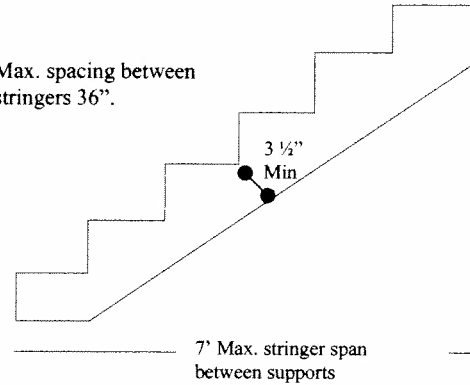


Figure AM110

Section AM111

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

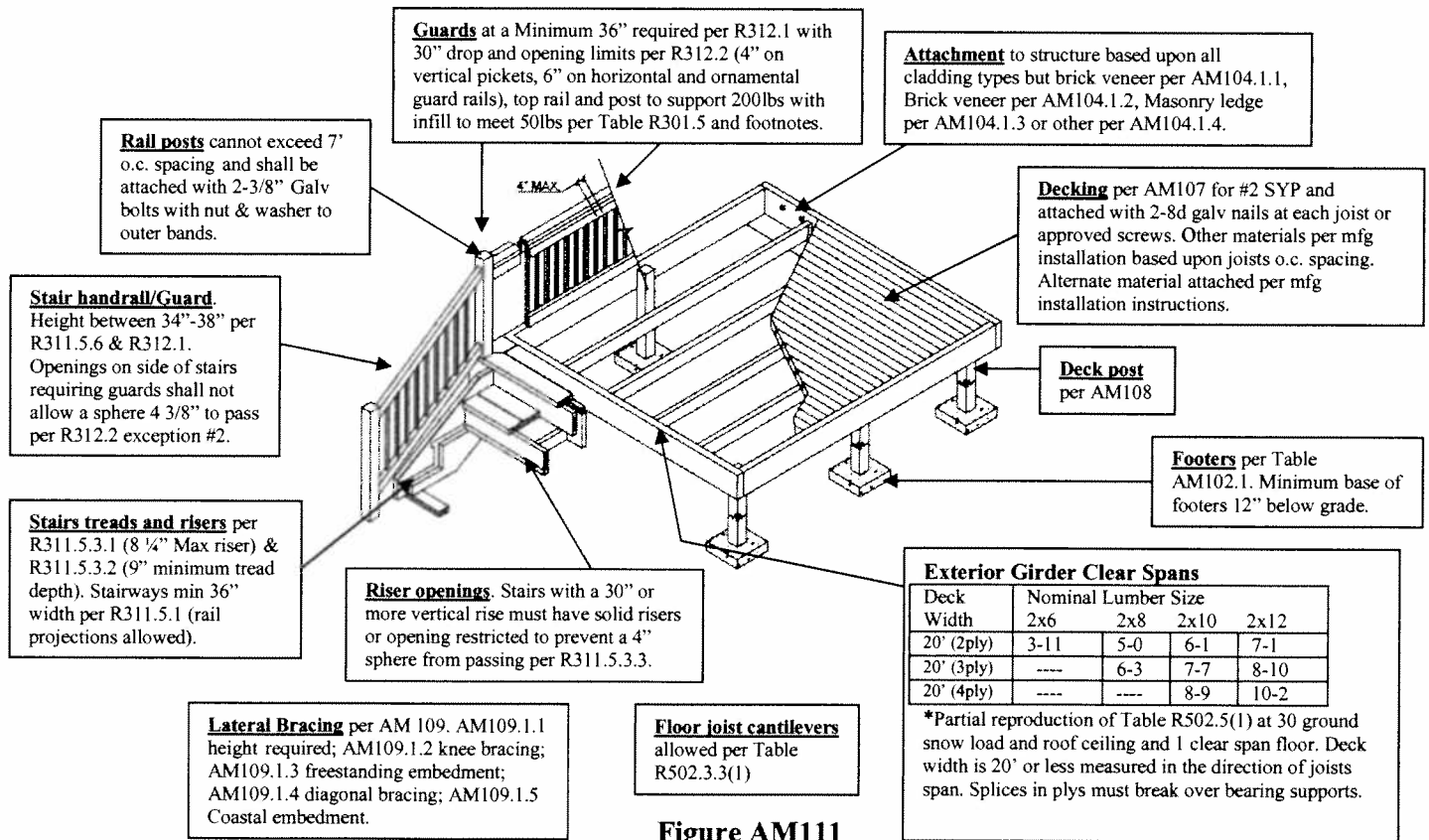
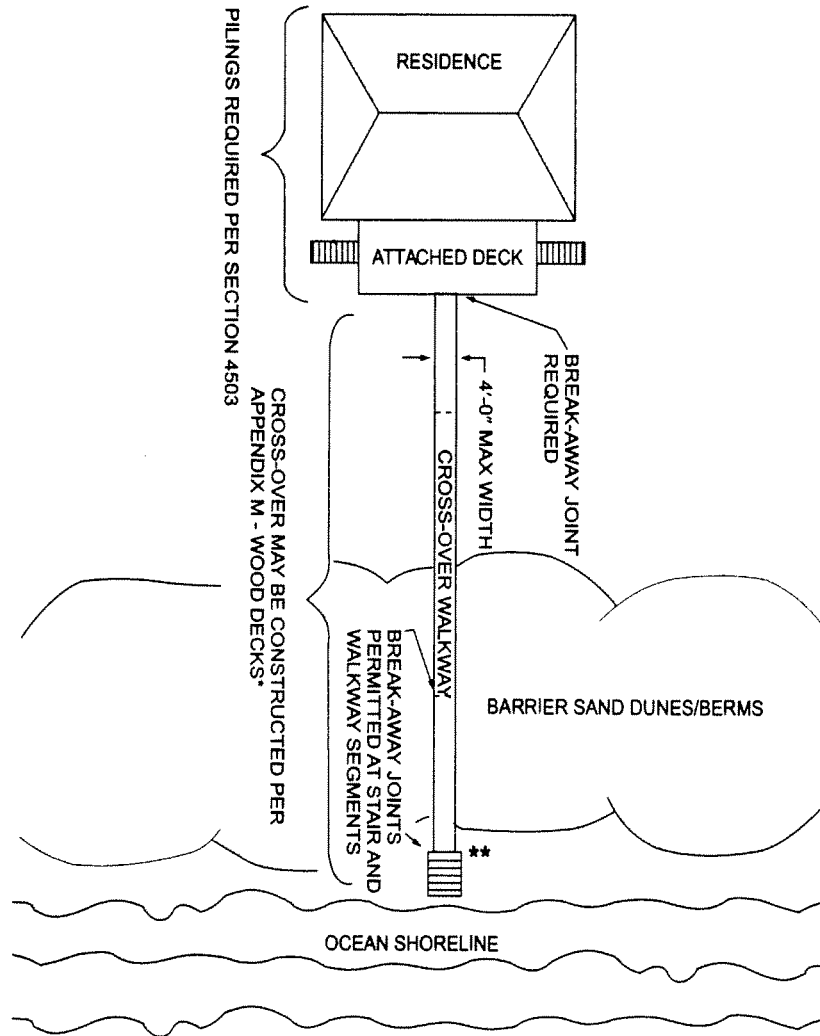


Figure AM111

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 4' - 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" above grade without guard rails.

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