All Decked Out?

What you need to know before building an attached or self-supporting deck to your home

Figure 8

Handrails, Guards and General Construction

Guard height:
- At a Minimum 36” required per R312.1 with 36” drop and opening limits per R312.2 (4”) on vertical plates. 8” on horizontal and ornamental guard rails.
- Top rail and post to support 200lbss with infant to meet below per Table R301.5.

Figure 7

Joist size Spaced @ Will span

Floor joist carriage

Joists

Figure 3

Figure 4

Handrails, Guards and General Construction

 Guards shall be attached with 2-3/8” galv. bolts with nut & washer to outer bands.

Figure 5

Joists

Top mount/flush

Side mount dropped

Figure 6

Top of post

Grade

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

Figure 2

Decks 48” or greater from grade require lateral bracing to be anchored at top of wood posts with additive strip or post brackets.

Figure 1

Decks 48” or greater from grade require lateral bracing to be anchored at top of wood posts with additive strip or post brackets.

Figure 2

2x2 ledger strip or joist hanger required

Figure 3

2-5/8” Galv.

through bolts with nuts and washer

Figure 4

Top mount/flush

Side mount dropped

Figure 5

Handrails, Guards and General Construction

Guards shall be attached with 2-3/8” galv. bolts with nut & washer to outer bands.

If you have any questions about these specifications, the use of other materials, standards or the code requirements for your deck, please do not hesitate to call City of Raleigh Inspections Plan Review at (919) 996-4200 or City of Raleigh Development Services - Customer Service Center at (919) 996-2495.

For more information, visit our web site at raleighnc.gov

This brochure is a publication of The City of Raleigh

Planning and Development
Department of Inspections

Joist span tables from the Building Code for #25YP and a 40 lb. Live Load:

*Partial reproduction of Table R502.5(I) at 10 ground snow load and roof ceiling and 1 clear span floor. Deck width is 20” or less measured in the direction of roof spans. Splices in girders must break over bearing supports.

Joist span tables from the Building Code for #25YP and a 40 lb. Live Load:

Span is actual clear distance between supports. 5/8” bolts are needed at the top, bottom, and middle bracing points.

Splices, treads and risers:

- per R311.5.3.1 (8” max rise) & R311.5.3.2 (6” minimum tread depth + 3/4” nosing). Stairways min 36” width per R311.5.1 (rail projections allowed).

Decking:

- per AM105.2: Minimum base of fasteners “12” below grade.

Girder span tables from the Building Code for #25YP and a 40 lb. Live Load:

- Partial reproduction of Table R502.5(I) at 30 ground snow load and roof ceiling and 1 clear span floor. Deck width is 20” or less measured in the direction of roof spans. Splices in girders must break over bearing supports.

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**First Things First…**

Everyone dreams of the “perfect deck”…

But getting from Point A (the dream deck) to point B (planning and constructing it) 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 the Residential Office 8320-130 Litchford Road, Raleigh NC or simply call us at (919) 996-4200. Office hours are Monday-Friday from 8:00 am to 4:45 pm.

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**Some Things to Think About…**

1. **Will your deck be attached to the residence for support or will it be a “self supported” deck?**

   If attached, this means the deck will be attached to the house 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, non-corrosive flashing must be installed between the house and deck bands (see flashing detail in Figure 1) to prevent water from rotting the house band. See diagram below for detail.

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

   Your joists must be sized to carry a 40 lb. per sq. ft. live load. In some instances, a girder is used to help support the deck. Use 2" x 10" spaced 16" or 8" with bolts or 2" x 12" through bolted to posts. See figure 4 & 5 for more information on allowable spans.

3. **How do you plan to bracing your deck for lateral support?**

   If your planned deck is attached and over 4’ above the ground (measured from top of footing to deck floor), bracing is required to establish minimum setbacks that must be maintained 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.

4. **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 support the deck. Use 2" x 10" spaced 16" OC.

5. **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. Each footing must be dug down into undisturbed soil to a minimum depth of 12 inches.

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**Footings**

- **Precast Footings**
  - 8" X 16": 40 sq. ft.
  - 12" X 16": 70 sq. ft.
  - 16" X 16": 100 sq. ft.
- **Precast Footings**
  - Footings shall extend underneath siding above a min. 2".

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**Our Recommendations for a “Minimum Code” and a “Code Plus” Deck…**

**Lumber**

First, all lumber should be treated or decay resistant. We will assume that you will use pressure treated Southern Yellow Pine #2 (SYP) with joint spacing set at 16 inches on center (OC). Other species of lumber are acceptable for use. For specific allowable spans on other species, consult the building code or call the Residential Office.

You only need to build to Minimum Code. However, if you want a sturdier deck, we have also given you our recommendations for a Code Plus deck.

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**Safety Features**

- **Hand Rails:** 2" X 10" Space between pickets is 4" Height: 36" minimum
- **Deck Band and Ledger:** Use 2" x 10" Ledger: use 2" x 2" with 3 nails under each joint (may substitute 2" x 8" band if joint guard rails are used in lieu of ledgers)
- **Joist:** Use 2" x 10" spaced 16" OC
- **Deck Flooring:** Use 2" X 8" flooring with 1/8" space between
- **Guard Rail Height:** Max. clear space between pickets is 4" Height: 36" minimum

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**Why the permit and inspections?**

To ensure that the deck will comply with local zoning regulations and with the North Carolina State Residential Building Code. The 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 requires safety features such as guard rails and hand rails.

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**Important Note:**

The Building Code also regulates items such as the stringers and treads for steps, fastening (nailing and/or bolting) and bracing for lateral stability. Be sure to discuss these with one of our specialists if you have questions about what the code requires.