



# Laying out Deck Footings

A fast and accurate way to get the holes in the right spots

BY GREG DIBERNARDO

**I**nstalling deck footings is rigorous work. Even though I use a machine-driven auger instead of digging by hand, clearing rocks and mixing and placing concrete is still hard.

The vast majority of decks are rectangular and are supported by being bolted to the house on the inside and by a built-up beam on the outside. Most deck beams are “dropped,” that is, set below so that the joists rest on the beam and cantilever beyond by a couple of feet. In some cases, the beam is “flush,” or set at the same level as the joists, which attach to the beam with joist hangers. In either case, the beam location determines how far the footings will be from the house. The first step in footing layout is to establish the line of the deck beam parallel to the house. I do this with stakes and string, extending the

line beyond where I know the ends of the deck will be. Then I locate and lay out one side of the deck so that it’s square to the house, and I use that as a reference for spacing the footing locations.

Deck footings have to be placed just right so that the posts they support land in the center of each footing. Pay attention to the framing plans. They might not call out the location of the footings, but they will at least show the centerline of the beam and the spacing of the posts.

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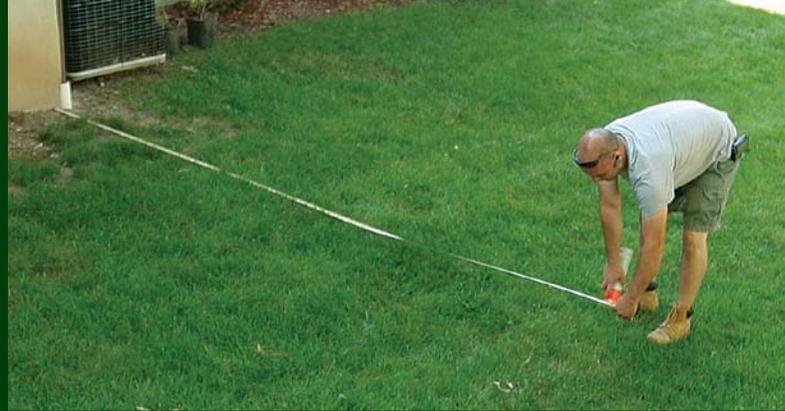
Greg DiBernardo owns Peachtree Decks and Porches in Alpharetta, Ga., and has been specializing in outdoor construction projects for over 10 years. Photos by Andy Engel.



# STRING THE LAYOUT STRAIGHT

Any deck begins with a plan, whose theoretical outline has to be transferred to the ground in order to locate the footings and begin construction. String is the right tool for establishing the straight lines and square corners of a deck. Although any string will do, braided mason's line is strong, stretches less than other string, and comes in highly visible colors.

**1 Determine where the footings will go.** Measure out from the foundation to where the centerline of the footings will be. Mark the ground with paint at each side of the future deck, a short distance beyond its ends.



**2 String the centerline.** Drive a stake at each end of the deck. Stretch a string tightly between the stakes, then double-check its distance from the foundation.



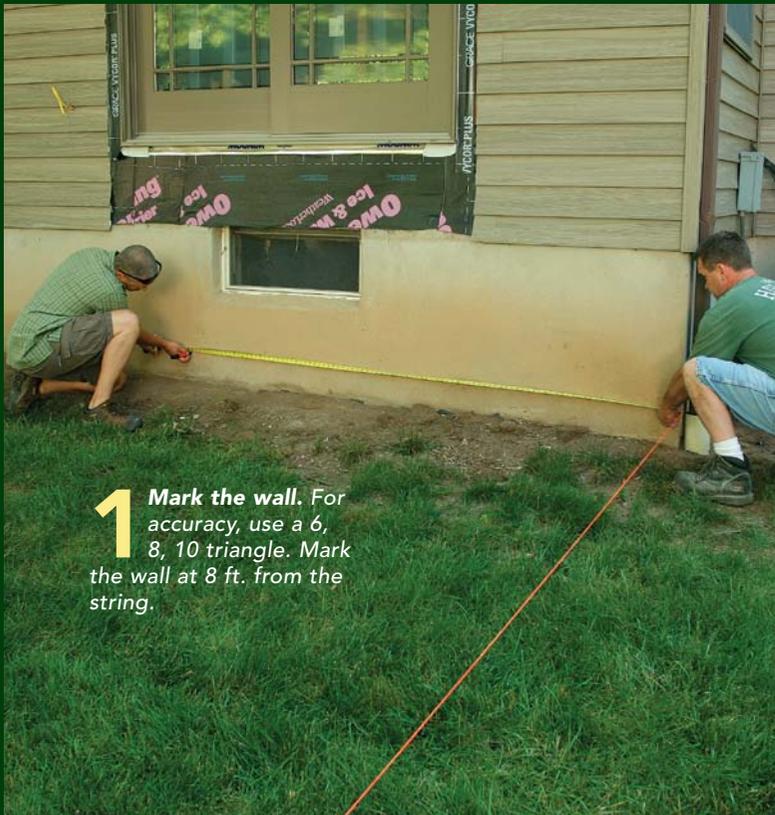
**3 Set a second string square to the first.** If there's a foundation corner or jog, the easy way to square up the footings is to drive a stake tight to the foundation, sight the string so that it's parallel to the adjoining wall, and set the outer stake.



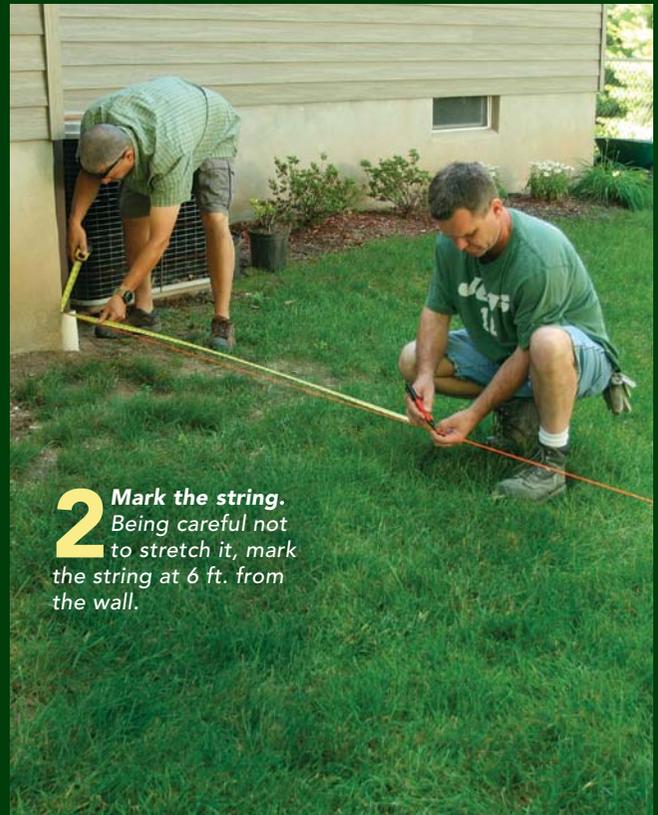
# VERIFY SQUARE WITH PYTHAGORAS

While you often can start a square layout by eyeballing a string stretched along a foundation corner, foundation corners are not always square. Because of this, square should still be verified with a version of the Pythagorean theorem. Any triangle whose

sides measure 3, 4, and 5 (or multiples of those numbers, such as 6, 8, and 10) has a square corner opposite the hypotenuse. With this knowledge, it's easy to verify that your string is square to the house using only a tape measure.



**1** **Mark the wall.** For accuracy, use a 6, 8, 10 triangle. Mark the wall at 8 ft. from the string.



**2** **Mark the string.** Being careful not to stretch it, mark the string at 6 ft. from the wall.



**3** **Verify a square corner.** Pull a tape from the 8-ft. mark on the foundation to the 6-ft. mark on the string. Verify a 10-ft. measurement on the tape or the stringline will need to be adjusted square.

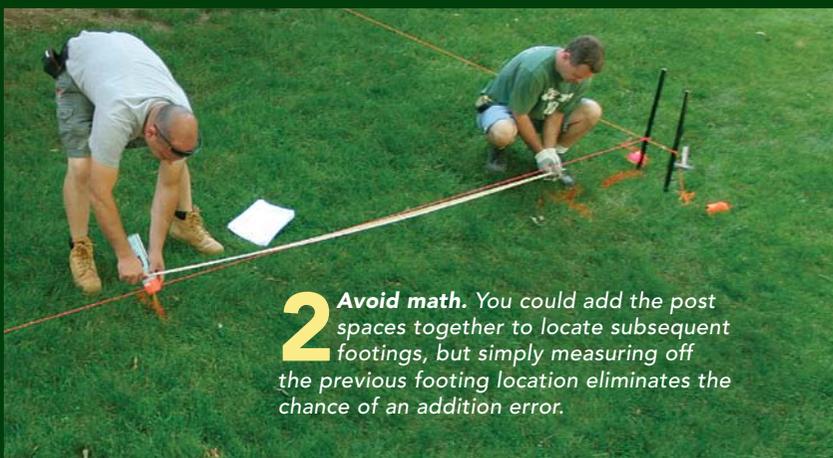


# MARK THE FOOTING LOCATIONS

Once you've strung the line of the footings parallel to the house and measured their locations so the deck will end up square and the footings properly spaced, it's time to mark the ground. Upside-down spray paint in bright colors makes marks that won't get lost in the job-site shuffle.



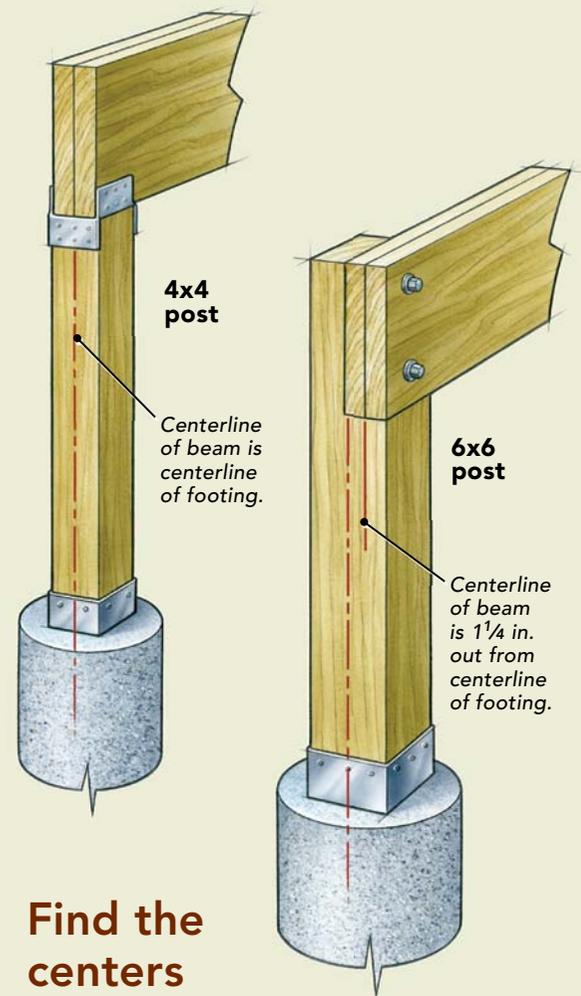
**1** **X marks the spot.** Using the post spacing from the plans, measure from the perpendicular string and paint the center of the first footing location on the ground.



**2** **Avoid math.** You could add the post spaces together to locate subsequent footings, but simply measuring off the previous footing location eliminates the chance of an addition error.



**3** **Dig 'em out.** Whether you use a mechanical auger or dig by hand, an accurate layout will keep you from putting a hole in the wrong spot. (These mini-skid steers can be rented.)



## Find the centers of the footings

Deck posts should be centered on their footings. Depending on the post base used, the accuracy of the footing layout can be critical. Some post bases—Simpson's CBSQ, for example—require a minimum of 3 in. between the edges of the concrete and the sides of the base. If you're using a 6x6 post, that leaves very little wiggle room on a typical 12-in.-dia. footing. Other bases, such as Simpson's EPB44PHDG, require a minimum of 3 in. of concrete to the sides of the anchor bolt in the center of the base. That allows almost 6 in. of play in locating these bases on a 12-in. footing. If the deck beam is to be supported on a 4x4 post, you can use the planned distance from the center of the beam to the house as the center of the footings. However, a common detail is to support the beam on a notched 6x6 post. In that case, because the post is wider and will be offset from the beam, the footing is centered under the posts by being placed 1 1/4-in. back from the center of the beam.