HOMEOWNER REPAIR GUIDE

BUILDING WOODEN STEPS

Building a set of wooden steps can seem intimidating, but it is a job most homeowners can do with a little skill – and a little patience. Before starting to measure and cut, however, it's important to understand some of the code issues in regard to steps.

> **PERMIT REQUIRED**
>
> This is a job that will generally require a permit; check with your city's Building Department for code requirements in your community.

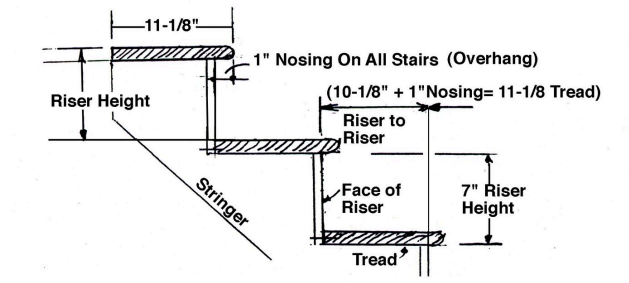
CODE REQUIREMENTS

All steps must be supported by a foundation, or "**footer**." The purpose of this footer is to prevent the steps from being heaved up out of alignment when the ground freezes and thaws. If your steps do not rest on a sidewalk block or portion of the driveway, you'll need to dig out and pour either piers or a concrete pad, making sure the footer is at least 36″ deep. Your footer will usually have to be approved by your Building Department before the steps are placed upon it.

A **landing** is usually required at the top of any steps that lead to a door. If your present steps do not meet this standard, you'll need to redesign their layout. This may mean that the steps will need to come off at a different angle or at a new distance from the house; in these cases, you'll have to install a new footer.

The design of your steps must meet code requirements. In Cleveland Heights:

Step width	At least 36″ wide
Riser height	Maximum 8″
Treads	At least 11″ wide
Nosing (overhang)	1″ required for steps with closed risers
Middle stringer	Required for support if the steps will be more than 36″



Step dimensions: riser height, tread, and nosing

PLANNING YOUR STEPS

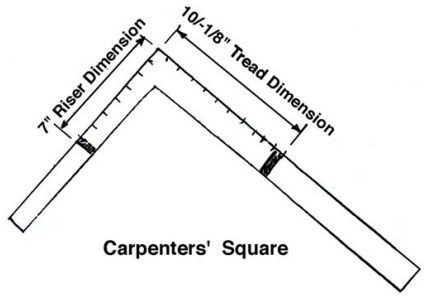
Your first step, then, is to measure the total height of your steps, from the footer up to the level of your landing deck. Divide that figure into equal increments, so that you end up with a step height between 7″ and 8″. Remember that the last "step" will be from the top tread up to the landing; for a 28″ height, for example, you'd build three 7″ steps.

While outdoor treated wood is not generally required by code, it will give you a longer-lasting repair. For sturdiness and stability, use 2 x 12's for the stringers and treads – or, you can buy bull-nosed stair treads (where the front of the board has been rounded off). You'll also need wood for the risers (preferably 2 x 8's) and a 2 x 4 for a back brace to hold everything together.

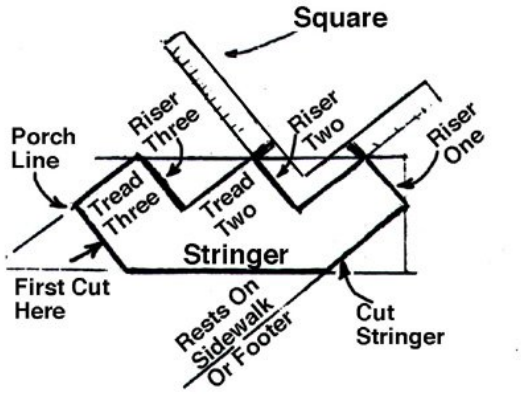
LAYING OUT AND CUTTING THE STRINGERS

Once you have the lumber, you can start the most important part of constructing your steps – laying out and cutting the stringers.

1. Take a framing square, and place a piece of tape around one leg at the dimension corresponding to the riser height. On the other leg, place a piece of tape at the dimension corresponding to the tread width, riser-to-riser (without the nosing). In our example, one leg would be marked at 7″; for the other, we'll assume that the stair tread we purchased was 11-1/8″ wide, leaving us a 10-1/8″ measurement when we subtract the 1″ nosing.
2. Take the framing square and place it with the tape markers (at 7″ and 10-1/8″ in our example) against the edge of the board, as shown in the diagram. Trace along the edge of the framing square.
3. Then, reposition the square so that the next tracing will begin where the first one ended. Repeat the process of positioning and tracing until you've marked the number of steps required.
4. Finish off the stringer by marking the top and bottom as shown in the diagram.



Carpenters' square marked for a 7" riser and 10-1/8" tread



Laying out the stringer with the square

ADJUST THE FIRST AND LAST STEPS

Remember that, for the height of the riser going from the sidewalk to the first tread, you'll need to subtract the thickness of the tread board – since you won't have one sitting against the bottom of the riser like you do on the other steps. And, on the top tread, you'll need to subtract the thickness of the riser board, since the steps will be sitting directly against the porch.

STOP, THINK, AND CHECK

Now, before you cut, STOP, THINK, and CHECK YOUR MEASUREMENTS to make sure you have treads and risers of the right dimensions.

Then, cut out the stringer. (You can use a circular saw for most of the cut, but you'll probably need to finish off the inside corners with a hand saw.) When you've cut your first stringer, use it as a pattern for the other(s) you'll need.

ASSEMBLING THE STEPS

When your stringers are ready, you can cut and attach the treads and risers (optional) with nails or screws, making sure that you end up with steps that are plumb, square, and level. Attach pieces of 2 x 4's between the stringers on the back side of the steps, even with the bottom, for added support. Then, screw or toenail the steps to the porch landing, making sure the treads are level. (A very slight pitch away from the house for water drainage is also acceptable.)

RAILINGS

Code usually requires **railings** on open side(s) of the landing and on stairs of more than three risers or more than 24″ high. The railing on the landing must be at least 36″ high, and on the side(s) of the steps, 30″ to 34″. The space between the spindles or other railing pieces must be less than 4″, to prevent small children from getting stuck or falling through.

WHY BUILD YOUR OWN?

You may think that building your own steps is unnecessary, given the pre-made sets you can purchase at lumberyards and building supply stores. However, the above process will allow you to custom-fit the steps to your situation – designing the layout of steps and landing to fit your yard and ensuring that riser heights are the same between all the treads. With some thought – and attention to code requirements – you can end up with a set of steps you can be proud of.

Home Repair Resource center

Home Repair Resource Center empowers homeowners to maintain their homes for sustainable and diverse communities.

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