

Skill Level: ADVANCED Try these projects after you have a collection of DIY successes under your belt, and make sure you're ready for a challenge. You'll need experience with a wide variety of specialized tools, and it may take several hours to finish. If you've built a deck or installed an irrigation system, these projects probably match your abilities.

MATERIALS

- Paper
- Pencil
- Level
- Framing Square
- Tape Measure
- Stair Gauges
- 2x12 Planks
- 5/4 Decking
- Sawhorses
- Circular Saw
- Handsaw
- Dust Mask
- Work Gloves
- Safety Glasses
- Brackets
- Drill with Bits
- Socket Wrench and Sockets
- Carriage Bolts, Washers and Nuts
- 3 lb. Hammer
- Screws and Nails

IMPORTANT

Building and installing a deck stairway requires lifting and manual labor. If that doesn't sound like something you want to do, discuss the job with a Lowe's associate. We can install your deck for you. In this set of instructions for our deck building series, you'll learn how to calculate stairway dimensions and build a solid set of steps. If you haven't installed your decking, you'll need to take care of that first. View the previous video and instructions in this series, *Framing and Decking*, at Lowes.com/Videos.

PREPARATION

- **01** Be sure that you understand and follow local building codes. You may need plan approval, a building permit, and one or more inspections during the construction process.
- **02** A deck stairway is comprised of one or more pair of diagonal stringers or supports and numerous horizontal *treads* or steps. Like decks, stairways can also have vertical *balusters* and horizontal *rails*. A simple deck plan will have one stairway section or multiple sections with *landings*, flat areas that connect runs. Landings are often used to change the direction of the stairway.



03 Stringers typically are made with 2x10 or 2x12 lumber. The stringers can be

notched, or cleats made of metal or wood can be attached to the inside of stringers to support the treads. Most deck stairways have open steps with treads only; boxed steps have horizontal treads plus vertical *risers* (also known as *toe-kicks*). These instructions describe installation of a stairway with notched stringers and toe-kicks. Refer to your deck building plans for specifics. You can also buy pre-cut stringers.

- 04 Simple stairways are attached to the deck rim or end joist and supported by a concrete footing. Longer stairways and those with landings will require support posts. Refer to *How to Build a Deck: Setting the Posts* for specific instructions on installing deck support posts.
 - Your support posts should be placed at the end of the run (explained in Step 05). Position them so you can attach them to the stringer or bottom toe-kick.

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PREPARATION (cont.)

- **05** Use paper, pencil, level, framing square and tape measure to calculate a stairway *run*, the horizontal depth of the steps. Most building codes call for a minimum run of 9", but 11-12" may work better. The rise or vertical distance between the tread is typically about 7".
 - TIP: A shorter rise is usually more comfortable with a deeper run, and a taller rise works better with a shorter run. A good rule to follow is the sum of the rise plus the run should equal about 17-1/2".
 - 1. Calculate the total rise of the stairway directly over the landing. Extend a level or straight 2x4 from the deck surface and take the measurement to the ground below. In our video, the total rise is 34".
 - 2. Divide this measurement by 7", the ideal height for each step. Round this number to the nearest whole number to get the number of risers. In our video, the number of risers is 5.
 - 3. Divide the total rise by the number of risers. For our example, we divide 34" by 5 to get the actual height of those risers, in this case, 6-7/8". If the result is too short for your preference, reduce the number of risers by 1 and calculate again.
 - 4. Calculate the run. The example uses two 5/4x6 decking planks for the tread, with drainage gaps about 1/8". We added toe-kicks on the back of each step for a cleaner look. In the example, the unit run will be 11". Refer to your deck building plans for details on the run.

06 Calculate the length of the stringers.

- 1. Refer to a framing square.
 - One side is marked in 12ths, allowing you to scale 1' down to 1". For instance, 8' on a framing square is marked at the 8" line. The smaller lines are inch marks that make up one foot.
- 2. Calculate the total run (number of treads x individual run = total run).
 - The example total run is 5 treads x 11" = 55" or 4' 7". Hold the end of a tape measure along the left side of the square at 4' 7" or your calculated total run mark.
- 3. Locate the total rise (determined in 05-1 above).
 - In the example, it is 34" (see above) or 2' 10". While still holding the end of the tape measure on the left side, move the tape to the 2' 10" mark on the right side of the framing square.
- 4. With the tape measure on these two marks, take note of the measurement and hold it along the framing square. It will show you the minimum length for the stringers. In the example: 5' 3", so you will cut the stringers from two 6' planks.













MAKING THE STRINGERS

01 Set stair gauges on the framing square at the height of the rise and length of the run.

- **02** Hold the square at the corner of the plank, and mark the top step.
- 03 Slide the square along the plank and mark the next step.
- 04 Continue marking until you have your number of steps.
- **05** At the top step, hold the square under the mark and make a perpendicular line. This is where the stairway will attach to the deck.

06 At the bottom step, hold a piece of tread where the stairway will rest on the ground. Mark this line, which will shift the stairway down by the thickness of the tread. Now when you attach the top tread to the stairway, it should be flush with the decking.

07 Cut the first stringer with a circular saw, finishing the cuts with a handsaw.

- **SAFETY TIP:** Always wear a dust mask and safety glasses when cutting treated lumber.
- Apply a weather sealer to the cut ends of treated lumber.











09 Cut the next stringer.

 Complex stairways may require multiple stairway runs with landings. Refer to your deck construction plan for specific dimensions and requirements.

ASSEMBLING THE STAIRWAY

01 Refer to your construction plans and local building codes to make sure that stairway construction will comply.

02 Mark on the deck joist where the stairway will attach.

- The video example stairway is 48" wide, supported at the deck with brackets and at the bottom step with posts.
- 03 Secure the stringers to the deck flush with the top of the joist.
 - If using brackets, conceal them by attaching them to the inside of the steps.
- 04 Cut all of the treads and, if used, toe-kicks.
 - The tread width will depend on whether they are installed on top or inside of the stringers. Refer to the deck construction plan.
- **05** If used, install all toe-kicks with screws.
- 06 If attaching the steps to posts, use carriage bolts to secure them to the posts.
- 07 Install the treads.
 - If using two boards for the tread, use a nail as a spacer between the treads to allow for drainage.

The deck stairway is in place and there are only a few more things needed to finish your deck. Next, you'll install the railings and skirting. Check out *Finishing the Deck*, at Lowes.com/Videos.

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MAKING THE STRINGERS (cont.)

08 Use the cut stringer as a template to mark subsequent stringers.