

Steps constructed from QUIKRETE® Concrete Mix or QUIKRETE® 5000 High Early Strength Concrete Mix are attractive and durable, and can provide good traction in wet weather. For

homes, they are usually built 48" (1.2m) wide, or at least as wide as the door and walk they serve. A landing should be used to divide flights of steps more than 5' (1.5m) high. It is recommended that landings be no less than 3' (1m) deep with the top landing no more than 7 1/2" (19cm) below the threshold of the door. To assure proper drainage, the steps should pitch forward with a slope of approximately 1/4" (6mm) per foot.

The height of the riser and depth of the tread are more important factors for achieving maximum safety and convenience. Use the following riser/tread proportion chart when building steps.

When Riser is:	Tread should be:
4" to 4-1/2" (100mm to 114mm)	18" to 19" (457mm to 483mm)
5" to 5-1/2" (125mm to 140mm)	16" to 17" (406mm to 432mm)
6" to 6-1/2" (150mm to 165mm)	14" to 15" (350mm to 380mm)
7" to 7-1/2" (175mm to 190mm)	10" to 11" (250mm to 300mm)

It should be noted that riser and tread size ultimately depends on step use. For a stepped ramp walkway on a long slope, the riser height should be limited to 6" (150mm) and the slope between 1/8" (3mm) per foot and 1/4" (6mm) per foot. In general, wide treads are compatible with a short rise because it allows for a more natural walking stride. Risers and treads must be uniform in any given flight of stairs.

Required Tools and Materials

- QUIKRETE® Concrete Mix or QUIKRETE® 5000 High Early Strength Concrete Mix
- QUIKRETE® Acrylic Concrete Cure & Seal
- QUIKRETE® Fiber Expansion Joints
- Sand or Gravel (for fill)
- Oil or Release Agent
- 1/2" (13mm) Plywood (for side forms)
- 2 x 4 and 2 x 8 lumber (for forms and stakes)
- Double Headed Nails
- Shovel
- Rake
- Wheelbarrow
- Mixing Box or Power Mixer
- Saw
- Hammer
- Tape Measure
- String Level
- Finishing Trowel
- Wood Float
- Edger
- Darby

Preparing the Base

Level the area to be covered by the steps. Clear it of dirt and stones, as well as grass and other organic materials. Dig to a depth of 6". Use sand or gravel to bring the site to uniform grade, then compact it by dampening and tamping it down. The base should be solid, uniform and free of foreign matter. Then, go on to build the forms.



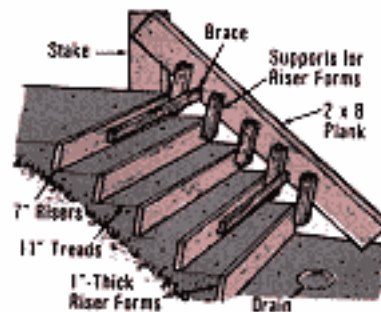
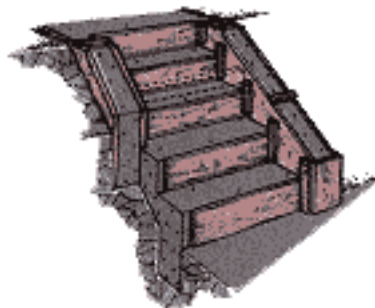
Step-by-Step

Building the Forms

1. Use 1/2" (13mm) sheets of 1/2" (13mm) plywood or 2" (50mm) lumber to build the side forms. Cut the forms according to the planned dimensions of the steps, always allowing extra depth for fill below the ground level.
2. Brace firmly in place with 2 x 4 stakes and diagonal braces running from the top edge of the sides to stakes set firmly in the ground.
3. Use a level to keep the forms perfectly vertical. If the steps are being built against a house or other foundation be sure to apply a 1/2" (13mm) QUIKRETE® Fiber Expansion Joint.



4. Coat the inside surfaces of the forms with oil or release agent to make removal easier.
5. For variations on building forms, see the illustrations.



Pouring the Concrete and Finishing the Surface

1. Fill in any low areas in the forms with gravel, broken brick, or chunks of concrete block; this will also reduce the amount of concrete mix needed. Work the mix in and around all rubble thoroughly. Make sure the rubble is placed back from the form sides so it will not break through the concrete surface.
2. It is important to mix the entire project at one time. Overfill the forms slightly, then work the concrete in and out with a shovel to compact the mix and eliminate air pockets.

3. Once the mix has been poured and compacted, screed the surface immediately.



4. Use a float or darby to level any remaining ridges and fill any voids in the concrete.



5. Once the surface has turned dull, use an edging tool with a ½" radius to round the edges.



6. Use a trowel to give the concrete a final smoothing. Keep the trowel pressed flat against the surface. Sweep it back and forth in an arc, with each pass overlapping half of the previous lap. To produce a textured, non-skid surface, use a wood float for the final troweling or apply a broom finish.

Curing the Concrete

Cure the concrete with QUIKRETE® Acrylic Concrete Cure & Seal. Allow the concrete to harden for at least 24 hours before removing the side forms. Keep in mind that proper curing of all concrete mixes is essential in order for maximum strength to be achieved.



Ramps

Ramps can be used in the event of a slight change in elevation; they also come in handy as paths for wheelbarrows, lawn mowers, and other equipment. Use plywood forms and be sure to stake them securely. Starting at the bottom, place QUIKRETE® Concrete Mix into the forms. Use a trowel to fill in the form, smoothing the surface as you go. Be sure to use a stiff mix; if it is too runny, it will not fill the forms completely. Cure the concrete with QUIKRETE® Acrylic Concrete Cure & Seal. Be sure to get permission from your local municipality before cutting away any part of a curb.