Pour a concrete slab

Working safely with concrete
Wet concrete on skin can cause everything from mild redness to third-degree, permanently disfiguring chemical burns. You and your helpers should take these steps:
- Wear eye protection. Sandy concrete splashes can wreak havoc with your eyes.
- Wear long pants and long sleeves to protect your skin.
- Wear tall rubber boots if you have to wade in wet concrete.
- Wear gloves (rubber gloves are the safest bet).
- If your clothes get saturated with wet concrete, on skin can cause everything from mild redness to third-degree, permanently disfiguring chemical burns. You and your helpers should take these steps:
- Wear eye protection. Sandy concrete splashes can wreak havoc with your eyes.
- Wear long pants and long sleeves to protect your skin.
- Wear tall rubber boots if you have to wade in wet concrete.
- Wear gloves (rubber gloves are the safest bet).
- If your clothes get saturated with wet concrete, you should take these steps:
- Use a rubber glove to protect your skin.
- Wear long pants and long sleeves to protect your skin.
- Wear tall rubber boots if you have to wade in wet concrete.
- Wear gloves (rubber gloves are the safest bet).
- If your clothes get saturated with wet concrete, take these steps:

Tool List
- Builder’s level or transit (Photo 1)
- Metal-cutting blade for your saw or a grinder to cut the rebar
- Tie-wire tool (Photo 5)
- Hand sledge for pounding in stakes
- Two or three contractor-grade wheelbarrows. A small gardener’s wheelbarrow won’t stand up under a heavy load of wet concrete.
- Heavy-duty iron rakes or special come-alongs to move wet concrete around
- Bull float with an extension handle (Photo 8)
- Groover (Photo 11)
- Edger (Photo 9)
- Two magnesium hand floats (Photo 12)
- Two steel trowels
You can rent all of the above, or buy some of the less expensive hand tools, like the steel trowel ($10 to $20) and magnesium float ($15).

Start bull-floating the concrete as soon as possible after screeding (Photo 8). The goal is to remove marks left by screeding and fill in low spots to create a flat, level surface. Bull-floating also forces large aggregate below the surface. Keep the leading edge of the float just slightly above the surface by raising or lowering the float handle. If the float angle is too steep, you’ll plow the wet concrete and create low spots. Three or four passes with the bull float is usually sufficient. Too much floating can weaken the surface by drawing up too much water and cement.

Float and trowel for a smooth finish
After you smooth the slab with the bull float, water will “bleed” out of the concrete and sit on the surface. Wait for the water to disappear and for the slab to harden slightly before you resume finishing. When the slab is firm enough to resist an imprint from your thumb, start hand-floating. On cool days, you may have to wait an hour or two to start floating and troweling. On hot, dry days, you have to hustle.

You can edge the slab before it gets firm since you don’t have to kneel on the slab (Photo 9). If the edger sinks in and leaves a track and pushes pebbles below the surface, use the float to remove the marks left by edging and smooth out humps and dips left by the bull float. You may have to bear down on the float if the concrete is starting to harden. The goal is to bring a slurry of cement to the surface to aid in troweling.

For a smoother, denser finish, follow the magnesium float with a steel trowel. Troweling is one of the trickier steps in concrete finishing. You’ll have to practice to develop a feel for it. For a really smooth finish, repeat the troweling step two or three times, letting the concrete harden a bit between each pass. At first, hold the trowel almost flat, elevating the leading edge just enough to avoid gouging the surface. On each successive pass, lift the leading edge of the trowel a little more. If you want a rougher, nonslip surface, you can skip the steel trowel altogether. Instead, drag a push broom over the surface to create a “broom finish.”

Keep concrete moist after it’s poured so it cures slowly and develops maximum strength. The easiest way to ensure proper curing is to spray the finished concrete with curing compound. Curing compound is available at home centers ($18 per gallon). Follow the instructions on the label. Use a regular garden sprayer to apply the compound. You can lay plastic over the concrete instead, although this can lead to discoloration of the surface.

Let the finished slab harden overnight before you carefully remove the form boards. Pull the duplex nails from the corners and kickers and pry up on the stakes with a shovel to loosen and remove the forms. Since the concrete surface will be soft and easy to chip or scratch, wait for a day or two before building on the slab.