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LANDSCAPING & IRRIGATION SUPPLIES
Bakersfield, CA

How To Guide for installing a flagstone patio. Of course, our professionals can do the job for you.

By David Bileau, About.com

Laying flagstone patios in sand is not difficult, although the stone can be heavy and you should wear a back brace, gloves and goggles. The stone used for this flagstone patio project is 2" thick. Since the shape of this stone is irregular, laying a flagstone patio is like putting a puzzle together. The thickest, widest pieces will give you the most stability. I'm making the finished flagstone patio surface level to the ground in this project (one less thing to trip over!).

Difficulty: Average

Time Required: 2 days

Here's How:

1. Pick as level a spot as possible for your flagstone patio. If you start on level ground, it'll be easier to ensure that the finished product's surface will turn out level. On another note, I'll say from the outset that the dry-construction (i.e., sans mortar) technique for flagstone patios outlined here has both pros and cons. On the plus side, the building is easy, as is the repair. On the minus side, it is almost certain that it **will** need to be repaired. See Tip #2 at the bottom of the page.

2. Measure before you do anything. If your flagstone patio is to be, say, 10' x 8', then stretch out a tape measure to the length of 10 feet on one side of the proposed flagstone patio, and mark this length with a string tied between two stakes. Measure out the 8' width in the same way, marking both sides with string and stake. After closing the rectangle with the fourth piece of string, check that you have a perfect rectangle. Just measure the 2 diagonals: they should be of equal length.

3. Now it's time to use a spade, which is essentially a flat shovel meant for chopping straight down through sod into the soil. Plunge the spade down 4" deep all around the perimeter of the rectangle you just plotted out for your flagstone patio. Then switching to a digging shovel, excavate all that sod and soil, down to a depth of 4". Note that this measurement represents a bare minimum. To provide flagstone patios with a better foundation, see Tip #5 at the bottom of the page.

4. Set a scrap 10' plank down on the ground, so that it runs the length of the rectangle on the left-hand side. Place a carpenter's level on the plank, and check for a level reading. It won't be exactly level yet (unless the area you picked for the project is precisely level), but it won't be difficult to correct that. Just scrape away more dirt on one end or the other, as needed, to achieve exact levelness. Repeat this process on the right-hand side of the rectangle and in the middle.

5. Then set the plank down so that it runs the width of the rectangle and repeat the process, checking for levelness on the left and right and in the middle.

6. Moisten the soil in the excavated area with a garden hose and tamp it down with a tamping tool. Set landscape fabric down over the base you've just established for your flagstone patio, to suppress potential weeds later. With a level base now, you're ready to frame in the rectangle with a form, using four 2x4s nailed together to enclose a 10' x 8' area. The idea behind the form is for it to act as a mold and contain the 2" layer of sand that you are later going to apply.

7. Note that a so-called 2x4 is truly 1.5" x 3.5". It is the 3.5" dimension that will be providing the form with its height. But I'll have you bury 1.5" of that 3.5" underground (I explain why in Steps 8-9). To do so, excavate down another 1.5" outside of the rectangle's perimeter. The width of this trough will also be 1.5" (you want your form to be level and to slip snugly into this trough).

8. I had you partially bury that form for a good reason: namely, you need to have just 2" of form sticking up. Why? Because you want the sand you'll be applying to be contained precisely within its form. This will give you a guide to go by, making your work go much more smoothly. Now shovel 2" of sand over the landscape fabric. Cut a scrap 2x4 to a length of 8' 2", to act as a screed.

9. Starting at one end of the rectangle, you'll slide this screed across the full 10' length of the sand layer. Slide the screed along the top of your form, thereby leveling the sand. Excess sand in the rectangle will thus be redistributed to low areas and you'll end up with an even surface. If you can't slide the screed easily, you'll have to remove some sand. Tamp the sand down with the tamping tool.

10. Now begins the fun part: laying the flagstone patio. After applying the sand, your new rectangular base sits only 2" down into the ground: just right to hold your 2"-thick stone pieces. Begin in one corner, placing your stone pieces down on the sand base like so many pieces in a puzzle. Keep the gaps between stones as small as possible.

11. Tamp each stone down with a rubber mallet. Using the carpenter's level, keep checking for levelness between stones. If a stone is resting too far down into the sand, remove it and place more sand under it. If a stone is sitting up too high, do the opposite: scrape away some sand from under it.

12. What happens when you try to fit a stone in somewhere, only to find it's too big? Keep it where it is for the moment, get a pencil and trace where a cut needs to be made. Here's where you don your protective eyewear. Remove the stone and score the line with a brick set (or bolster chisel) and mini-sledgehammer. Repeat on the opposite face. Score the sides, too. Think of the resulting grooves as a "perforation." Flag breaks easily, but the line helps ensure the stone breaks precisely as planned.

13. Place the scored stone on a piece of wood. Strike the stone along the score-lines on either face, using the mini sledgehammer.

The stone should split. If not, repeat your scoring, going deeper this time. Keep the leftover pieces (unless they're too tiny to be useful) that have been split off in this manner: you may need them to fill a small space somewhere else.

14. After all the stones are in place, dump a bit more sand on the flagstone patio. Take a broom and sweep it into the cracks between the stones.

15. Remove the 2x4 form now. Fill in the form's now vacant trough with sand and tamp it down firmly, using the butt end of a scrap 2x4. As an alternative, you could use decorative crushed stone here to create a border for your completed flagstone patio.

Tips:

1. Laying flagstone patios in sand, as opposed to mortar or concrete, is known as "dry construction." Dry construction is easier for do-it-yourselfers than wet construction. Not having to worry about finishing your stone placement before a layer of mortar hardens makes for a much more happy-go-lucky project. You can make adjustments as you go, on your own time-table.

2. However, wet construction is more "permanent." Stone laid in sand will have to be re-adjusted over the years. As settling occurs, you will have to add sand, to keep the desired level. If you don't mind tinkering with a project after its "done," this shouldn't present a problem. Just make sure you stay on top of it, so you don't end up with a lawsuit after someone trips over a loose piece!

3. The instructions above assume a location away from the house. If you choose to lay a flagstone patio up against a house, ensure that the surface slopes slightly away from the house, for drainage purposes. The last thing you want is to end up with water in your basement! Though less of a concern with dry construction than with wet construction, I still recommend being on the safe side here. Especially if you live in a region where heavy snows will be resting up against the house in winter.

4. It's nice to have a helper for laying flagstone patios, especially large ones. That way, for the screeding, one person can guide the screed on one side, and the other on the opposite side.

5. If your yard is wet, or you'd simply prefer a better foundation, you may want some additional drainage under your flagstone patio. To achieve this, simply excavate deeper at the beginning of the project. Then apply a layer of crushed stone before shoveling in any sand. Another improvement you can contemplate is purchasing stones with a thickness greater than 2". You'll pay more, and they're heavier, but they're also more durable. Adjust your excavating measurements accordingly.

What You Need:

- string, 4 stakes and a garden hose
- 2x4 lumber, 10" plank (2X8, for example) and scrap lumber
- landscape fabric
- brick set (a chisel with a wide cutting surface), mini-sledgehammer
- tamping tool and rubber mallet
- saw, hammer and nails
- protective eyewear and gloves
- flagstone, sand and broom
- carpenter's level, tape measure



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