

How To Build A Paver Patio Or Walkway



Complete step by step “How-to” guide for building a concrete paver patio or walkway.

Tools & Materials Required

- Landscape Fabric & Securing pins (if overlapping fabric)
- Shovel (Garden Spade and Flat-Bladed)
- Garden Rake
- Wheelbarrow
- Masons String & Stakes
- Level (ideally 4' to 6') and a line level
- Tape Measure
- Hammer
- Joint Sand (sweep sand)
- Course sub-base material such as concrete roadbase (crushed concrete)
- Paver Base such as 919 screenings (crushed limerock) or concrete screenings
- 1" outside diameter PVC or Iron pipe
- 2"x4" or screed long enough to reach both 1" pipes that are laid as guides
- Diamond Blade Wet Saw (rental tool)
- Vibrating Plate Compactor (rental tool)
- Vinyl Brick Edge & Spikes (optional, though recommended) or stone edging
- Work Gloves
- Safety Glasses
- Optional polymeric joint sand or joint stabilizing sealer
- Pavers

"screed is a flat board, or a purpose made aluminium tool, used to smooth concrete after it has been placed on a surface"
Source:<http://en.wikipedia.org/wiki/Screed>

How To Build A Paver Patio or Walkway

There are different ways of installing concrete pavers. We have found the following to be a solid technique of installing concrete pavers.

Choosing Your Pavers

Choosing the right paver for the job is very important. For walkways, patios and driveways you need to use a paver at least 2" thick. Standard pavers are 2-3/8" thick and are perfect for the job. You should also consider a color that will compliment the surroundings, such as your house, trees and shrubs.

It is not recommended to use thin 1" pavers on top of concrete driveways, as the weight of vehicles will break them, even when set in mortar. Thin pavers can be used on concrete patios and walkways, provided nothing heavy will be placed on them.

After choosing a color, decide what style and pattern you would like to have. The 3 piece system is the most popular. It includes 6"x9", 6"x6" and 6"x4" pavers which allow creating a nice staggered look. The 3 pc pavers are available in 2-3/8" or 1" thick. For heavy traffic areas, such as parking lots and commercial applications, thicker pavers should be used, which are 3-3/8" thick. They can handle heavy vehicles, such as dump trucks or busses. See the pattern diagrams for layout ideas (inside back cover).

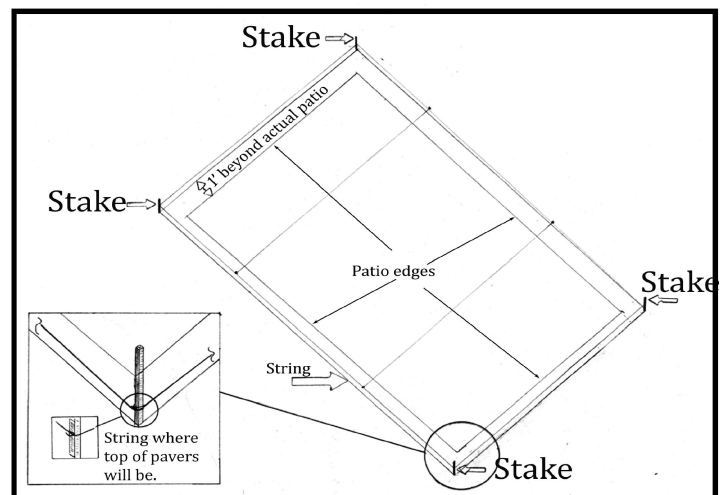
Also available are brick 4"x8"x2-3/8" Pavers. Using the 4"x8" pavers, you can create many different patterns. They also make a nice border. See the pattern diagrams for layout ideas (inside back cover).

Where To Begin

The first step is to check with local/county building codes and determine if you need a permit. Make sure you comply with any building codes or other legal requirements. The next step is to prepare the location where your patio or walkway will be installed. First, mark out the area where the patio will be installed. Make sure you know where any utility pipes or cables are located so you do not dig them up. Place your patio away from them, if possible, to leave them accessible.

Use some masons string (line) and stakes to mark it out. Place your stakes and string about 18" outside the area of the patio. You will need to excavate 12" beyond each side of the patio to create a base wider than the patio itself, for maximum stability. You may not be able to do so where the patio meets the house or other structure. In that case dig out right up to the outside wall or foundation. Your base should go right up against the foundation, or as close as possible.

You will need a solid base for the pavers to be stabilized for the long term. Keep in mind where the top of the pavers should rest. If you are placing pavers against a house, such as a doorway, make sure the top of the pavers sit just below the bottom of the door cover plate, if there is one protruding beyond the foundation. If not, keep it below the doorway but as close to bottom of outside wall as possible. You will need to pitch the entire patio away from the building. General rule is to drop about 1" per 10' of length.



How To Build A Paver Patio or Walkway (cont'd)

You should place stakes with string running along the building with the string exactly where the top of the pavers should be. Make it level along the outside wall. You will add stakes inside your hole at the far end of the patio to match the top of the pavers, with a slight grade from the building side. (It may be necessary to extend the string beyond the end of the building in order to be able to place the string almost against the building. This is because the hole you dig will be against the building. Or use extra long stakes to set below the portion to be dug out. A 2' to 3' stake should suffice.) (See Fig.1 inside back cover).

Next, dig out any sod, roots and excess soil. You will need a depth of about 7" from where the top of the pavers will be. You will need to use a course sub-base material on the bottom, such as crushed concrete roadbase or some type of crushed stone such as 3/4" limerock (#57 stone) or a 1" granite. Plan on using 6" of sub-base when ordering materials because after compaction it will leave about 4". Note, crushed concrete roadbase, concrete screenings and 919 screenings will compact approximately 30%. Stone will not compact very much, typically less than 10%.



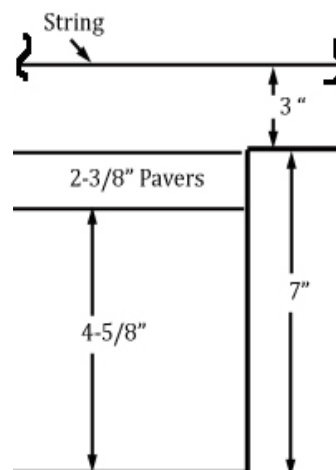
Compact the soil first, using a plate compactor or hand tamper. Optionally, install landscape fabric (highly recommended). Then pour in and rake around 3" of the sub-base material. Then compact with the plate compactor. Add the remaining sub-base and repeat the compaction. Make sure you still have 3-5/8" from the string to the sub-base. Lay down 2 pieces of 1" PVC or iron pipe long enough to reach the far end of the patio, if possible. You can run them either direction, but both should be the same direction. Keep them close enough together so you can drag the 2x4 or screed along the top of the pipe. This will be your smooth paver base line when finished with this step.



Spread out 1-1/4" to 1-1/2" of paver base material (paver base, concrete screenings or 919 screenings is recommended). Spread the paver base over the patio area and cover the pipes slightly. Use a long straight 2x4 to "pull" the base material. You can meticulously use the board and a 4' level to smooth the gravel out at the proper level, or you can pull strings across the area that are tied to wooden stakes at the appropriate elevation, and pull the board just under the string. Or attach string to the existing string running along the wall and the opposite side of the patio, which will give you the same pitched line. Use that to measure off when checking depth, which you should do periodically while spreading material.

NOTE: If your outer string lines are not at same level as the top of the pavers will be at, then be sure to measure the correct distance allowing for that. For example you could have the string 3" above the paver level. But, subtract that from your measurement when checking depth.

After spreading the paver base, you should have at least 2-5/8" remaining space to fit the pavers into. When installing the pavers they will be slightly above the string. This is normal. The pavers will sink into the paver base when you compact later.



How To Build A Paver Patio or Walkway (cont'd)

After laying the pavers you will run the compactor over the pavers with jointing sand, and that will even out the pavers and push them into the base, leaving the top of the pavers where they should be.

After pulling the paver base level at 1" deep, remove the pipe and gently fill in the space with more paver base keeping it level with the rest of the paver base. Using a trowel will make it easier. Pick a 90 degree corner, if available, to start laying pavers from. If building off a house or door, you might want to start there and work your way outward. Note when you get to the end of the patio or walkway, you may need to make cuts to finish the line. Or you can stop where a solid edge is obtained without cutting. If you need to cut, run pavers beyond the end, snap a chalk line and do one long cut to keep cuts even.

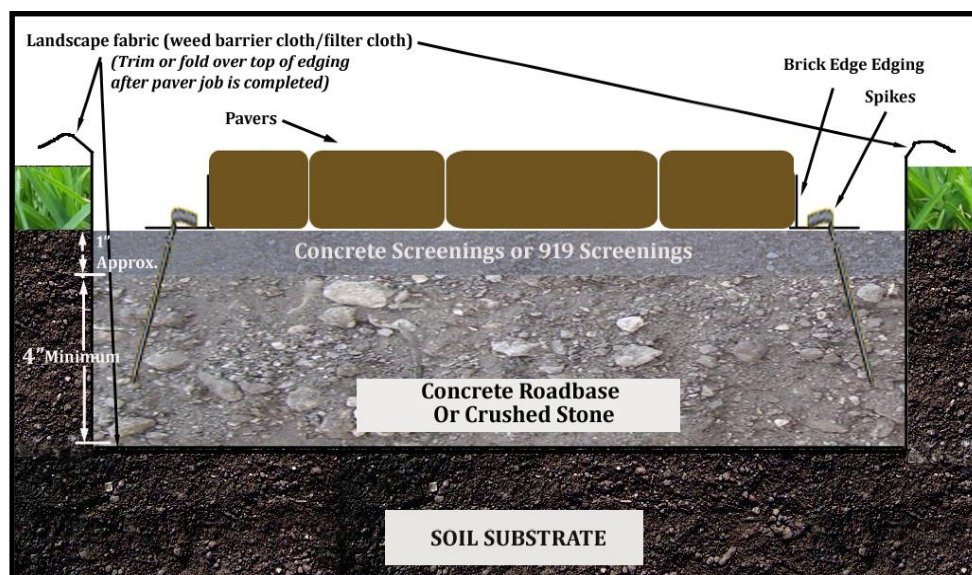


Lay pavers without dragging them in the paver base, which would disturb the level surface. Place pavers by holding tight against each other then pushing down gently. You can use a rubber mallet to tighten the joints as you go along. Lay one entire row in each direction, if possible, and make sure you have your 90 degree



corner intact, if any. Work your way outward and continue to tighten with rubber mallet to ensure there's no space between pavers, other than the preset joint width, usually about 1/8" or less. Note, walking on pavers will push them into the uncompacted base. You will level them out later with the plate compactor. Try not to step on corners which can shift the paver angle.

After laying all of the pavers you will need to tamp the pavers into the paver base. It is recommended that you use the plate compactor on a low setting. Run the compactor over the entire patio 2 or 3 times. The pavers should even themselves out very nicely and set into the paver base at the correct height.



How To Build A Paver Patio or Walkway (cont'd)

After tamping the pavers, install optional brick-edge edging around the perimeter to hold the pavers tight. If not using brick-edge edging, you should use something to secure the outside edges, such as landscape timber, mortar, stone blocks such as belgian blocks work good. The purpose of the border is to prevent "paver walking" (See image on right). Pavers tend to drift apart over time widening the joints which will make the pavers unstable.



At this point you can either fill the joints with jointing sand, such as a fine washed mason sand, or use a polymeric sand. If using polymeric sand, follow the instructions exactly. It is critical that you use a leaf blower to blow off excess dust before applying water.

If you are using mason sand to fill joints, spread a good 1/2" layer over the entire patio area. Use the plate compactor on a low setting and go over the entire area several times. This will shake the sand down into the joints. Sweep off excess sand.

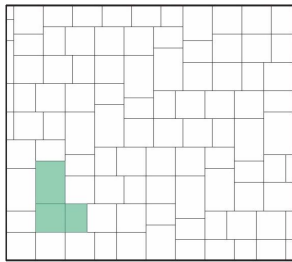
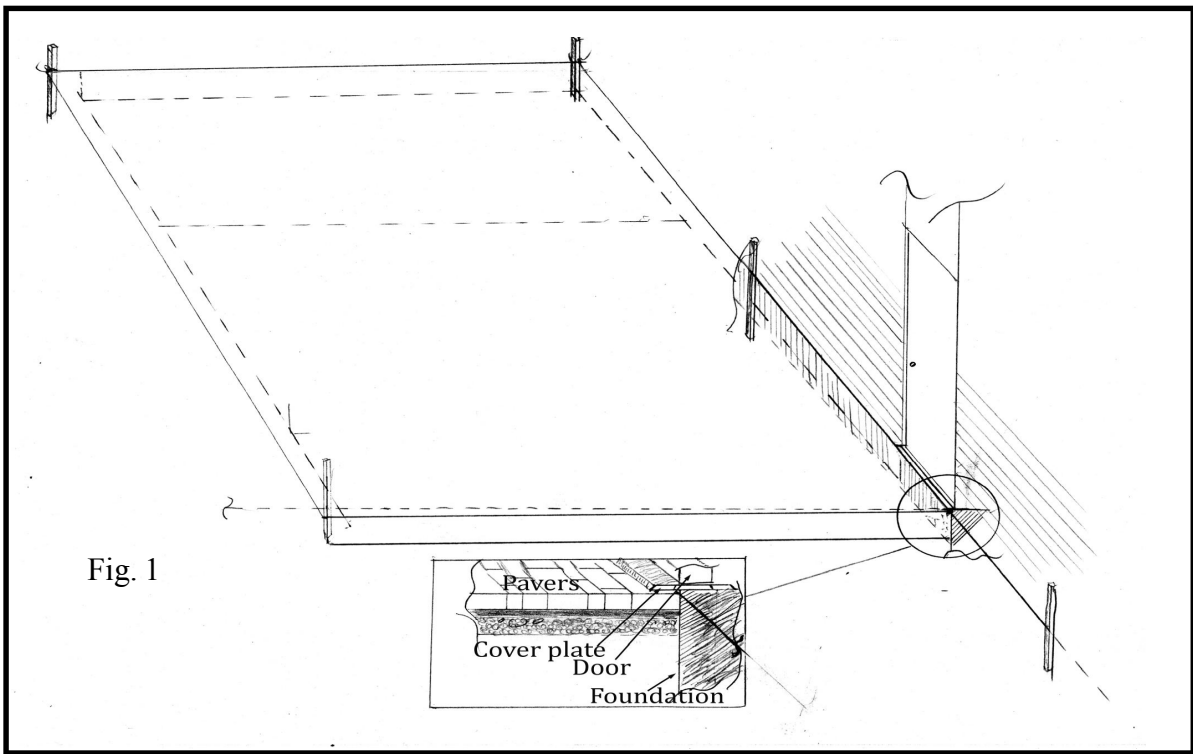


If you wish to lock the sand in the joints, you can use a joint stabilizing sealer such as the Surebond SB-1300 or SB-7700 Gloss Joint Stabilizing Sealer. The SB-1300 & SB-7700 are water-based, breathable sealers that will allow efflorescence¹ to filter through it to the surface. Once efflorescence is on the surface it can be cleaned without damaging the sealer. If using the sealer, make sure the pavers are clean and use a leaf blower to blow off any sand that might be on the surface. Follow instructions on the sealer jug. Pavers need to be completely dry before starting and make sure there's no rain forecast for at least 24 hours before, during and 24 hours after sealing.

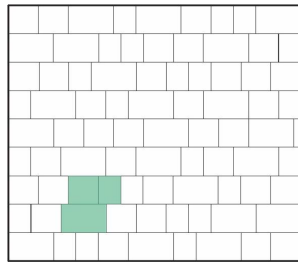
Note, using a sealer will change the paver color slightly, usually making the color stand out more. Follow instructions exactly for any sealer or polymeric sand you use.

¹ "Primary efflorescence is named such, as it typically occurs during the initial cure of a cementitious product. It often occurs on masonry construction, particularly brick, as well as some firestop mortars, when water moving through a wall or other structure, or water being driven out as a result of the heat of hydration as cement stone is being formed, brings salts to the surface that are not commonly bound as part of the cement stone. As the water evaporates, it leaves the salt behind, which forms a white, fluffy deposit, that can normally be brushed off. The resulting white deposits are referred to as "efflorescence" in this instance. In this context efflorescence is sometimes referred to as "salt petering." Since primary efflorescence brings out salts that are not ordinarily part of the cement stone, it is not a structural, but, rather, an aesthetic concern."

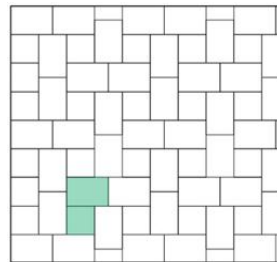
Source: <http://en.wikipedia.org/wiki/Efflorescence>



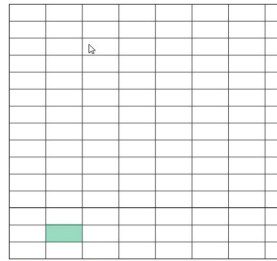
Random Olde Towne



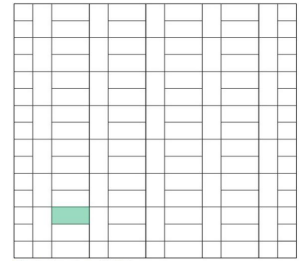
Random Running Bond Olde Towne



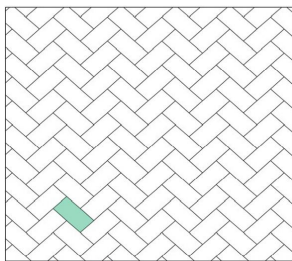
T-Pattern Olde Towne
- 20% Olde Towne (6x6)
- 70% Olde Towne (6x8)



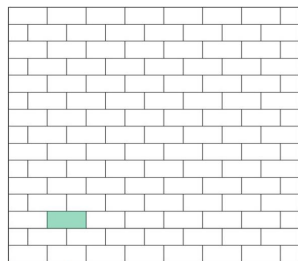
Stack Bond Brick 4x8



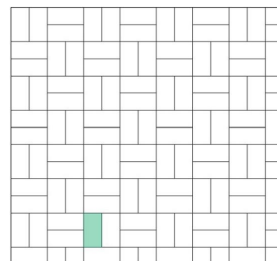
Basketweave Brick 4x8



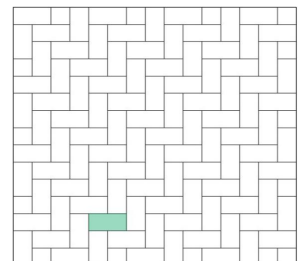
Herringbone 45° Brick 4x8



Running Bond Brick 4x8



Parquet Brick 4x8



Herringbone 90° Brick 4x8

Important:

From pallet to pallet of pavers, color can vary. It is always in the best interest to randomly select from different pallets during installation to ensure all colors of the pavers are distributed evenly.

Stone Plus, and their employees, do not claim to be professional masonry instructors or installers. These installation techniques are suggestions that tend to work with great success.

Stone Plus accepts no responsibility for poor installation or unusual conditions where pavers is installed. By using this information you agree to hold Stone Plus harmless for any damage or losses resulting from the use of or inability to use this information.



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