

Concrete Paver Installation Guide

STEP
ONE

TOOLS CHECKLIST

It's important to gather all of the tools you will need to do the job before you begin. Having everything on site and handy will avoid unnecessary delays and hassles. Using the right tool for each task makes your work easier and ensures a proper installation.

Do you have everything you need?

- | | |
|---|---|
| <input type="checkbox"/> Gloves | <input type="checkbox"/> Stakes |
| <input type="checkbox"/> Grub Hoe | <input type="checkbox"/> Duct Tape |
| <input type="checkbox"/> Shovel | <input type="checkbox"/> 3 lb. Hammer |
| <input type="checkbox"/> Wheelbarrow | <input type="checkbox"/> Mason's Chisel |
| <input type="checkbox"/> Line Level | <input type="checkbox"/> Square Trowel |
| <input type="checkbox"/> Mason Line | <input type="checkbox"/> Small Knife Trowel |
| <input type="checkbox"/> Tamper | <input type="checkbox"/> Screwdrivers |
| <input type="checkbox"/> Stiff-bristle Push Broom | <input type="checkbox"/> Utility Knife |
| <input type="checkbox"/> Plate Compactor (rental) | <input type="checkbox"/> Rubber Mallet |
| <input type="checkbox"/> Paver Splitter (rental) | <input type="checkbox"/> Metal Snips |
| <input type="checkbox"/> Power Saw (rental) | <input type="checkbox"/> Level |
| <input type="checkbox"/> Diamond Blades | <input type="checkbox"/> Pry Bar |
| <input type="checkbox"/> Marking Crayons | <input type="checkbox"/> Rake |
| <input type="checkbox"/> Knee Pads | <input type="checkbox"/> Steel or Bevel Square |
| <input type="checkbox"/> Measuring Tape | <input type="checkbox"/> Screed Rails (1" to 1 1/2" steel pipe) |
| <input type="checkbox"/> Chalk Line | <input type="checkbox"/> Screed Board (2 x 4 x 6 to 8') |

Notes:

STEP
TWO

SITE LAYOUT & EXCAVATION

Before you start staking out the area to be excavated, it's a good idea to contact your local utility companies, or Dig Safe, and ask them to mark all underground cables & pipes. Allow about 72 hours advance notice for this service.



Start with a corner stake and measure out your project area, leaving about a 6"-12" leeway from actual pavement edges for installation of edge restraints. Make sure your corner is 90 degrees! Set a series of stakes along the perimeter of the excavation area and connect with taught string or nylon mason's line. Any pavement should always be sloped away from buildings for drainage, so you will need to grade the soil during excavation. The minimum slope should be a 1" drop for every 5', or about 1-1/2 % slope. (So, if you have a stake every 5 feet, drop the string in 1" increments on each consecutive stake. You will measure all elevations and base thicknesses from the initial string lines. Be sure to clearly mark the string position on each stake in case they are accidentally moved. Use the base material project chart to figure out how far down you have to dig. For "poor" clay soils always use the maximum base thickness. Now you're ready to start digging! After excavation of the area, be sure to compact the subgrade with a vibrating plate compactor. The compaction must be uniform, thorough & complete before moving on to the next step.



STEP
THREE
3

BASE INSTALLATION

This step is critical to a successful paver project! It is essential to follow the correct procedure for base installation, without rushing, in order to avoid serious problems with your finished pavement.

Materials

Start by using the correct base material, which should be a coarse gravel with a proportioned gradation of sand & stone.

3/4" Processed Gravel or Crusher Run is suggested.

Compaction

Compaction describes the process of mechanically increasing the density of the soil & base material.

There are three keys to compacting an adequate base:

1. The Method of Compaction. A rented plate compactor that runs between 75 to 90 hertz will help you achieve excellent compaction. Hand Tampers will suffice for very small areas and are good for corners and other tight spots, which need special attention to receive the same compaction rate as the rest of the area.
2. The moisture content of the base material or soil. Soils compact better when they contain the right amount of moisture. If you squeeze a handful of soil & it retains its shape when you open your hand, it probably has an adequate moisture content. If not, you must keep the material slightly damp while compacting. If the surface starts to puddle or sweat while you are compacting, the material is too wet & must be allowed to dry out a bit.

Never work with frozen base material or soil!

3. Compacting the material in "lifts" or layers. You must spread & compact the base material in a maximum of 3" to 4" layers. (If using a hand tamper only, layer no more than 2" at a time.) Make sure each layer is *evenly* and thoroughly compacted before spreading the next one. Check elevations and surface fairness frequently and use only base material to correct low spots, making sure to thoroughly compact any additions before moving on.

When proper compaction has been achieved, the surface should be smooth. If it is still coarse, you must compact a "choke course" of fine material into the surface to prevent the bedding sand from migrating down.

STEP
FOUR
4

EDGE RESTRAINTS

Unless the pavers are butting against existing curbs or a foundation, it is important to install edge restraints around the entire perimeter. This keeps the pavers in position and prevents them from spreading or loosening. Various types of edging materials can be used. Flexible plastic edging, which is easy to install & will not rot or rust, is perfect for circles or curves. When you need to restrain a straight line of pavers, it is best to use rigid lengths of edging.

Place it directly on the compacted base & secure it by driving 10" stakes into the pre-drilled holes every 2 feet. (You may have to purchase extra stakes for the suggested placement.) Be sure that all square corners are exactly 90 degrees. It's that simple!

STEP
FIVE

SETTING THE SAND BED

Pavers are generally “dry set” in a bed of concrete sand. This method is not only easier & neater than others, it also allows for simple paver repairs or replacements - just pop up the damaged piece & replace with a new one! The biggest technical advantage of a sand bed installation method is the finished pavement flexibility and load expansion capabilities.

The finished sand bed must be between 1” to 1-1/2” deep.

Screeding

The bed of sand must be leveled so that it is an even 1” or 1-1/2” depth. This leveling process is called screeding. Start by laying 1” to 1-1/2” diameter steel pipes (“Screed Rails”) on the compacted base about 6’ to 8’ apart and parallel. At this point, check that the top of the pipes are:

2” below the finished elevation for 2-3/8” (6cm) pavers and 2-3/4” below for 3-1/8” (8cm) pavers.

Pack a small amount of sand around the pipes to hold them in place. (*You can also use spikes to keep them from rolling apart.*)

Cover the pipes & the area in between with sand. Level the sand by drawing the screed board along the top of the pipes with a backward motion. (Pulling toward you.)

If room permits, simply slide the pipes backward or move one to the other side in an adjacent area. Repeat procedure.

The voids left by the pipes need to be filled with sand and carefully hand floated with a trowel.

Never screed more bedding sand than you will cover in a day.

Do not disturb, walk on or compact sand in any way before laying the pavers!



A few notes before laying the pavers

1. Have your pattern handy

Please refer to the manufacturer’s pattern guide for pattern layouts specific to the pavers you have chosen. Keep the pattern picture handy and lay the pavers in the order suggested for optimum rhythm & efficiency.

2. Cutting Pavers

The easiest & quickest way to cut pavers is either with a hand-held power saw equipped with a diamond blade, or a guillotine cutter. Mark the cut line on the paver with something that easily washes off- pencil, marking crayon, soapstone, etc. If your saw has a wet-cut blade, be sure to rinse the pasty residue off of the pavers immediately; otherwise, it will stain. *Don’t forget to wear the proper safety gear!* Safety glasses, gloves, a dust mask & hearing protection.

3. Are you laying a Border Course?

Cutting odd-sized pavers to fit around the very edge of your area can lead to instability. Instead, try over-laying your field course first. Then, as you lay the border course of whole pavers next to the edge restraint, cut the field pavers to fit within the border.

Border Courses can be made from a completely different shape & color than the main field pavers. See your manufacturer’s guide for sample border styles.

4. Distributing inherent color shades

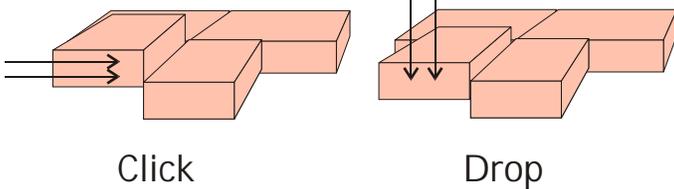
Pavers from different cubes may have been manufactured at different times & under different conditions, resulting in subtle shade variations. When installing, try to randomly choose a few from each pallet as you go. This will create an even distribution and a fantastic effect.

STEP SIX LAYING THE PAVERS

All concrete pavers are made to perfectly interlock when placed along a straight line. Therefore, it is essential that you begin laying your pavers from a perfect 90 degree angle, preferably from one of the corners. Do not assume that all corners, even pre-existing building corners, are 90 degrees. Check! Once this is established, a series of strings or snapped chalk every 5 or 6 feet will help “keep you in line.” Think gravity and start at the lowest ground first. *Always work from the surface that has already been paved, leaving the bedding sand undisturbed.*

Click and Drop

When you lay the pavers, the best way to maintain consistent joint spacing and a neat pattern is to use the “Click and Drop” Method. After the first few pavers have been laid to establish the pattern and 90 degree angle, grasp the next paver by the top 1/2” (as shown.) Slide through the air horizontally, toward its proper resting spot, about a 1/2” below the top of the laid paver. Let the long edge just tap side of the the laid paver. When you hear the click of the pavers tapping, drop it in place.



If you are using a border course, lay the main field pavers first, marking out & leaving adequate space for the border. You can over-lay the main field a bit if the spacing is questionable. Then, begin laying down the border course, cutting the field pavers to fit inside if necessary.

STEP SEVEN COMPACT & JOINT SAND

When all pavers are laid & you are satisfied with placement, pattern & fit, it is time to compact the pavers into the bedding sand. Compaction evens the top surface of your pavement and starts the interlock process by forcing sand up through the joints. Do not use your plate compactor to set these patio blocks! You must use a rubber mallet to tamp the blocks down into the bedding sand. Be sure all patio blocks have been properly tamped down and compacted into place.

Start on one edge of the pavement and compact the perimeter first. Then, go back & forth the main field. *Do not compact any pavers that are within 3 feet of an unrestrained edge.*

After initial compaction, you are ready to begin filling the joints with sand. We recommend concrete sand. Spread some DRY concrete sand over the top of your pavement. With a stiff bristle push-broom, begin sweeping the sand around the pavement and into the joints using a push-pull-pound motion. When joints are full, sweep off excess sand and repeat compaction. This will vibrate the sand down & allow you to sweep the next lot into the joints. Repeat sand sweep. Continue until all joints are filled and tight. *Retain some sand in a dry place and re-sweep after joints have settled over a period of 30 - 60 days.*

STEP EIGHT FINISHING!

Sweep the pavement clean & wash it off with water. *Be careful not to wash sand out of the joints!* Back-fill the perimeter with topsoil & seed or your choice of landscaping material.

Although it is not necessary to seal pavers, sealer intensifies the color and protects your pavers from stains, ensuring a beautiful surface for many years. Cleaning & sealing can also restore the original appearance of raw pavers that have been exposed to dirt & wear over time. Please talk to your sales representative about these products.