LANDSCAPE ORNAMENTAL SERIES
A Guide for Louisiana Landscape Professionals

Best Practices for Paver Installation

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Adding a hardscape patio provides an aesthetically pleasing, functional outdoor space to enjoy with friends and family. There are many types of materials you can use, including paver bricks, bluestone, concrete, flagstone and more. Patios can be designed in a geometrically organized manner, or one's creativity can be expressed through varying the shape and orientations of the different pavers (Figure 1). By following these steps, you can create an exciting enhancement to your property.

1. Mark Utilities and Generate a Design

Before doing anything, place a call to your utility locator. Louisiana 811 is a free service where a technician will come to the site and locate underground utilities. Call 811 or visit www.louisiana811.com to submit a request. This is a legal requirement before excavation can begin. Failure to do so can result in fines, costly utility damage, personal injury or death. Knowing the location of utilities allows you to better plan out the patio design. Consider the functional use of the patio and how many people it is intended to support when designing the patio. Assess the slope of the site. By installing a hardscape, you are adding an impervious surface that will funnel water downhill. Make sure the slope directs water away from any buildings.

2. Rough Grade and Sub-base

Now is the most critical part of the project — ensuring the grade is correct and making a flat sub-base. With your design mapped out, carefully mark the designated area. Remove grass from this area, as well as a couple of feet in all directions. You will need to ensure that the soil is roughly 6 inches below the desired final paver surface. Grade the soil using a steel rake and tamp the soil down. You will want to achieve at least a 2% slope away from any building. Next, you will add roughly 3 inches of gravel for the sub-base. One of the more common types of gravel to use is crushed limestone with fines. Using a steel rake, grade the gravel to a rough 2% grade. Use a vibratory plate compactor to compact the gravel into a smooth surface, lightly spraying the gravel with water to moisten the fines to create a concrete-like consistency. In order to verify the grade, you will need to set up a string level (Figure 2). To do so, insert rebar into the soil outside of the patio area, at least one on each corner, and tie a string between them. Make sure the string is level by using a hanging line level. Next, measure the distance from the string to the gravel surface. The areas at the uphill portion should have a lower number than the areas at the downhill portion. You want a 1-inch difference in height every 4 feet to achieve a 2% slope. Run string between all of the rebar to create a grid. This will allow measurements to be taken at different points and offers more precision in the grade. Add or remove gravel as necessary to achieve the slope and run the plate compactor again. Repeat this process until you have your sub-base smooth and sloped properly. This is the most critical step in the entire project.

Figure 1: Common paver designs (A: herringbone, B: McCauley)

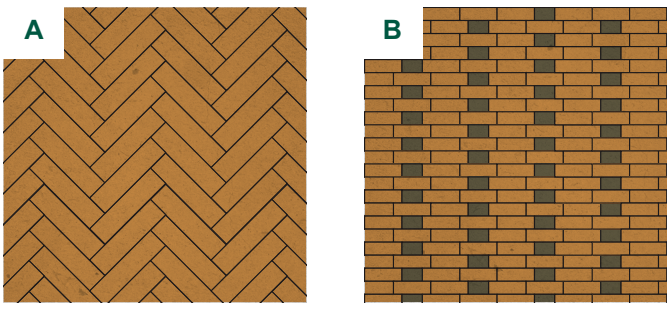
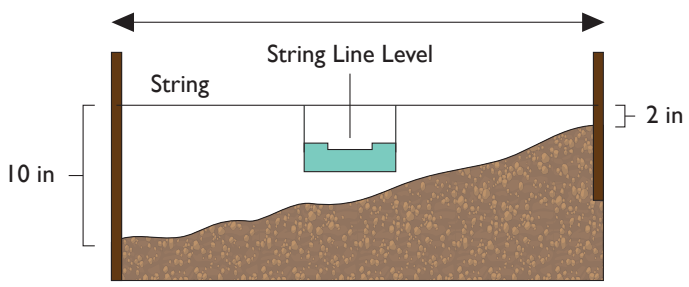


Figure 2: Diagram of string level procedure for sub-base grading



This means that the site is 8" out of level

3. Sand

Now that your sub-base is completed, it is time to place sand over the top. The type of sand that is used is a washed, coarse sand, free of any particles. The sand needs to be set at the proper level and grade, but given that your sub-base has been graded properly, this step is quite simple. You will want a 1-inch layer of sand between the sub-base and the pavers. Place two 1-inch pipes parallel to each other over the sub-base and place sand over the top. Using a 2-by-4-inch piece of wood, scrape the sand out over the pipe. This ensures a flat, 1-inch layer of sand. Depending on the patio being installed, it may or may not be better to get all of the sand graded before putting pavers in. In some cases, it may be preferable to add it in sections, particularly if building a larger patio. It is generally best to start with placing sand on the portion of the patio that adjoins any structures or walls.

4. Paver Installation

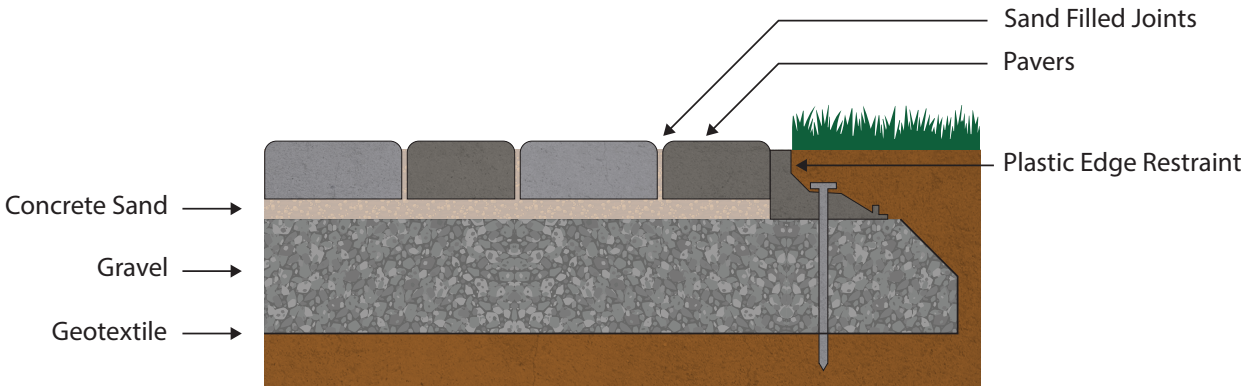
Now that the sand is in place, you can begin to add pavers. Start by placing your first row against the side of any buildings or walls. This ensures an even, straight line, and you won't have to make any complicated cuts to square with the wall at the end. After this, continue to place pavers in a line based off the original line. At the end of the patio, you may have to cut a paver to a certain size to fit properly. As a general rule of thumb, when cutting pavers with a diamond saw, it is best to cut at an angle with the wider surface on the top or visible portion of the paver. This is because attempting to cut a paver perfectly flush is nearly impossible, and the slightest angle in the wrong direction may result in a wasted paver and less aesthetic patio. Figure 3 displays a side view of all layers and the paver.

5. Finishing Steps

Now all your pavers are successfully installed. Ensure that they are secured in place by using plastic edging around the perimeter. With the edging installed, grade soil back to meet just below the paver height, allowing space for turf to grow to meet the height of the paver. The final step is putting joint compound between the pavers. Polymer sand is commonly used for this. Empty a container of polymer sand over the pavers and sweep it into the gaps using a push broom. Once all the joints between pavers are filled, lightly spray the patio with water. Your patio is now ready to be enjoyed.

For more information on hardscape installation, please contact your local LSU AgCenter Extension office or visit www.LSUAgCenter.com

Figure 3: Cross section of gravel, sand, pavers in a patio



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