General Brick Installation Instructions

Excellent Resource for Clay Paver Installation:
http://www.bia.org/Resources/Clay-Brick-Pavers/Clay-Paver-Informational-Resources

These are general guidelines only. Check your paver manufacturer's recommendations before laying pavers. Fundraising Brick is not liable for paver installation; these are only general recommendations.

TIPS:

❖ Clay soil can be particularly unstable over time. You can add stability to your project by covering the bottom and sides of the excavation with a geotextile fabric stabilizing layer before you add your base.

❖ Also instead of using a concrete toe, you can place wet Portland cement and base mixed together under the border pavers. For instance: you are using a 6"x9" paver as a soldier border for a driveway. You excavate out the compacted base the entire length under the border, mix in portland and water. Then set it back in the area. Place the soldier paver back into the wet concrete mix and hammer back to level. You have basically just created a 9" wide concrete beam that is not visible to the viewer. If it does crack, it is rare that a 9" wide concrete beam buried below grade would move.

❖ If you have sandy soil, you may be able to mix 1 94-pound bag of Portland cement into each 30 square feet of your soil as a base. Do this only if you're installing a walkway or patio that will receive only foot traffic.

❖ In southern climates not subject to freeze thaw, a concrete toe can be used in place of edge restraints, and for some projects, such as driveways, a toe is not preferred. Install the toe after you have already installed the pavers.

❖ Spray your base gravel lightly with water to moisten it. This will make it easier to compact the base correctly.

SOIL TYPES:

Sandy Soil

❖ Most brick patios are installed with layers of both sand and rock for the longest lasting installation, but in some cases it isn't necessarily a requirement. If you are living in an area that already has sandy soil, you can generally use a layer of crushed rock underneath the brick. The sandy soil already provides a base of support, and as long as it is packed firm under the installation, there are no concerns.
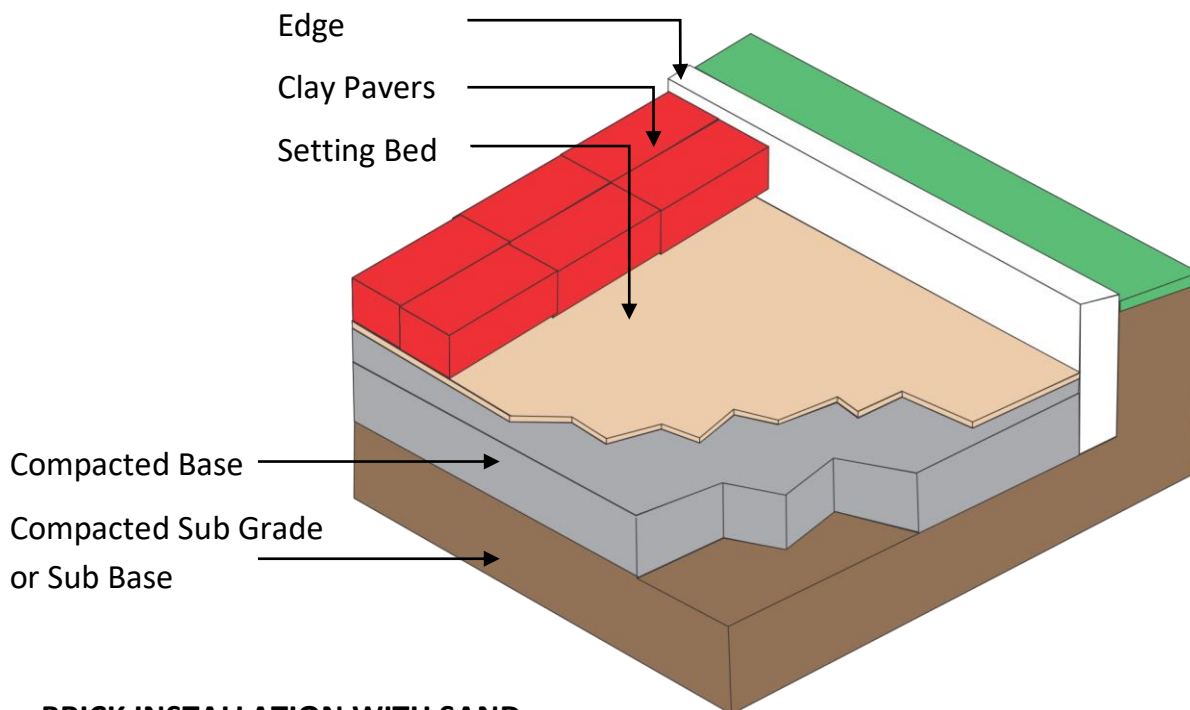
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Clay Soil

❖ While rock isn't necessarily affected by water, sand is. If you live in an area that has a clay soil base you will need to use more rock than sand. This is because clay does not drain well and that backwater can soak into the sand and cause it to harden and eventually soak up clay elements. Once this happens you will have pieces that can occasionally stick up due to hard sand underneath, so sand should be kept to a minimum in these cases.

Hard Soil

❖ As long as the soil is dry and hard-packed, you can use a base of rough sand. It will need to be thick enough to support the pavers, but because the ground is dry and excess water isn't an issue you don't need the rock for drainage, and the sand can sufficiently support the patio above. You can also add a layer of rock under the sand if you want extra protection.

Climate

❖ The climate can affect the type of sand you use on top of your rocks. Because sand can soak up water, it is susceptible to freezing in the winter, as well as the freeze/thaw cycle in the late fall and early springs months. When water hardens it expands, which forces patio pavers up off the patio. Your best option in these cases is to use the roughest sand you can find or the finest type of rock gravel to allow for adequate drainage.

Edge

Clay Pavers

Setting Bed

Compacted Base

Compacted Sub Grade or Sub Base

BRICK INSTALLATION WITH SAND:

Tools and Equipment:

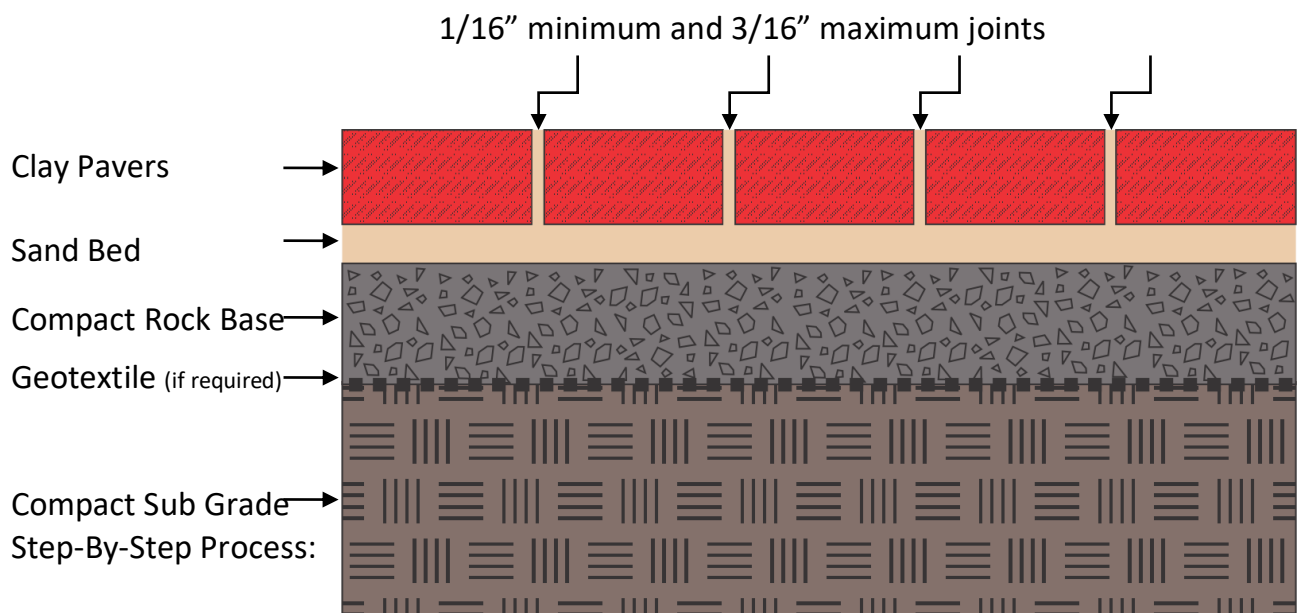- Shovel for excavating the area to a depth of 4-12". For larger jobs, a skid loader or backhoe can be used.

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- Tamping machine to compact base and pavers.
- Chisel and hammer to split pavers or, for larger jobs, a brick saw can be used.
- Wheelbarrow or skid loader to haul sand, gravel, and pavers.
- Rubber mallet for positioning pavers.
- Level
- Stakes and strings for marking perimeter of area to be paved and to provide a guide for leveling pavers.
- Screed board to level base and sand before setting pavers.
- Broom to sweep sand into spaces between pavers.

Site Considerations:

The area chosen for paving should be level with a ½ - 1% slope to provide for drainage. Avoid areas where tree roots might cause damage to the paved area. Recently disturbed soils or soils high in organic matter should be removed and replaced with compacted base material.

Most brick pavers are 2 1/4" thick. Add this measurement to your base depth to calculate how deep you should excavate. For example, for a driveway you should excavate a total of 8 1/4" from where you expect the surface of the pavers to be when the job is complete (assuming that you are using a 6" base depth and using 2 1/4" thick brick pavers).

1/16" minimum and 3/16" maximum joints

Clay Pavers

Sand Bed

Compact Rock Base

Geotextile (if required)

Compact Sub Grade

Step-By-Step Process:

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1. Excavate the area to be paved using a shovel or skid loader. The depth needed will depend on the intended use for the paved area. If the area will be used for foot traffic only, you will need a 4" base of crushed rock. For heavy traffic or a lawn tractor, 6" is necessary. For driveways, 12" of crushed rock will be necessary. Construction fabric can be used to stabilize the existing soil before the base material is added. Add to that ½-1" for sand and the depth of the pavers themselves to determine the depth to be excavated.

2. Fill the excavated area with crushed rock or class 5 fill. Begin by spreading an even layer of rock 3-4" deep. Use the tamping machine to compact the rock. Add another 3-4" layer and compact again. Continue this layering process until the desired amount of base is in place and fully compacted. Be sure each layer is level before adding the next layer.

3. Install the desired edging around the perimeter of the area to be paved.

Be sure measurements are accurate so pavers will fit properly. When determining the finished size of the paved area, choose a size that will require as little cutting or splitting of pavers as possible.

4. Add a ½-1" layer of coarse sand over the crushed rock base. The sand covers the small rocks found in the base material making leveling easier. Stabilize it by tamping or moistening with water to avoid future settling. Using a screed board, smooth the surface of the sand so that the entire area is level with the edging. The sand surface should be at a height so that when pavers are placed on top, they will initially sit approximately ¼" above the finished elevation.

5. Set the pavers on the sand in the desired pattern. For larger areas, position string to crisscross the area to assist in aligning bricks correctly. Pavers should be set tightly against one another; bricks can be set with 1/16" minimum and 3/16" maximum joints between them. If the final row of pavers must be cut to fit, use a brick saw to cut to the desired size or split them using a hammer and chisel.

Note:
When square-edged pavers or pavers without lugs are laid with sand joints, care should be taken to ensure that they do not make direct contact with or lip under adjacent pavers. A minimum 1/16 in. (1.6 mm) wide sand-filled joint should separate each clay

paver to minimize potential chipping. However, the maximum joint width should be no more than 3/16 in. (4.8 mm) to minimize the potential for horizontal movement under vehicular traffic. If pavers with spacers and/or a rounded or chamfered edge are installed, there is less potential for direct paver contact. When lugs are used, the potential for creep is reduced.

6. When all bricks or pavers have been set, spread sand over the entire area and using a broom, sweep sand around until all the crevices between the pavers or bricks are filled.

7. Run the tamping machine over the surface of the pavers until the crevices are full of sand.

8. Spread more sand over the surface and sweep it into crevices between pavers. This step may need to be repeated over the next couple of weeks.

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BRICK INSTALLATION MORTAR:

1. Make wood spacers from ½-inch by ½-inch boards, cut to 3-foot lengths with a circular saw or a hand saw. No special type of wood is necessary for the spacers; you'll use them to obtain a rough level on your mortar.

2. Lay out your brick pattern as you want it to look beside your walkway. Unless you're a professional mason, this is the best way to get the exact pattern you want. You don't have to lay out the entire walkway at once, but lay out enough to complete at least a 3-foot length of walk. You can lay out more as you go.

3. Cut a section of plywood to the dimension of the width of your walk. For a standard 3-foot residential walkway, you would cut a square of plywood that is 3 feet long and 3 feet wide.

Set the Bricks

4. Place one spacer on each side of your sidewalk at the start of your walk. The spacers serve as a rough level, helping you keep the mortar bed even.

5. Mix mortar as directed on the bag and spread it out on the concrete between the wood spacers, creating a 3-foot "bed" of mortar about ½ inch high over the level of your walkway, using the spacers on each side as rough guides.

6. Transfer the bricks, maintaining the same pattern, from beside the walkway to the mortar bed. Do about 3 feet at one time, working from side to side on the walkway.

7. Set each brick as you place it by pushing it back and forth lightly. The bricks will sink about ¼ inch into the mortar bed, displacing some of the mortar between each brick.

8. Complete a 3-foot area and then place the plywood square lightly on top of the bricks. Tap lightly over the entire surface of the plywood with a rubber mallet to level the bricks beneath. Remove the plywood and use a trowel to wipe away excess mortar that has seeped out on the edges of the walkway. Repeat with the each 3-foot section of walkway.

Finish the Project

9. Spread fresh mortar over the bricks after the entire brick walkway is complete and the mortar bed is hard. Use the trowel to push the mortar evenly into the spaces between the bricks, wiping excess mortar off the top of the bricks as you go.

10. Brush away dried mortar from the brick surface with a stiff-bristle brush, when the mortar is completely dry.

11. Spray off the surface of the bricks and your walkway is ready for foot traffic.