



Laying a Flagstone Walkway

Setting the stone is the fun part; preparing a solid base first will make the walk last

BY ERIC NELSON

Every house needs a walk. Walks are useful and inviting, and installed with care, they can add to the appeal and value of a home. Flagstone is a popular choice for walks because it looks natural and creates a smooth walking surface.

Flagstone isn't a particular type of stone. It's the term for any big, flat, quarried stone used for walks, patios, or floors. Some flagstone is cut into rectangular shapes, and some has rough, natural edges. Here in the Northeast, where I work as a landscape contractor, bluestone is the most common choice for walks. Flagstone can be laid dry (on a bed of stone dust) or wet (in concrete).



Use large stones for landings at entries and steps.

A secondary entry gets a narrower walk.

Plan for curves with stones large enough to be cut in place.

End the walk with large stones in case they need to be cut to meet the driveway.

The distance between the walk and the house has an effect on the perceived height of the house. The closer to the house the walk is, the taller the house is going to appear.

The walk's path should be direct and connect the most commonly used entries to the street, driveway, or parking area.



Paint offers a preview. Paint that sprays upside down marks the perimeter of the proposed walk and gives you a chance to see how it will look with the landscape and house.

But there are drawbacks to laying a walk in concrete. It is a more expensive and involved process, and in colder climates, concrete is prone to cracking during freeze/thaw cycles. If a stone moves in a dry-laid walk, it is simple to fix. Also, a dry-laid flagstone walk looks natural in a mature landscape; concrete detracts from this aesthetic.

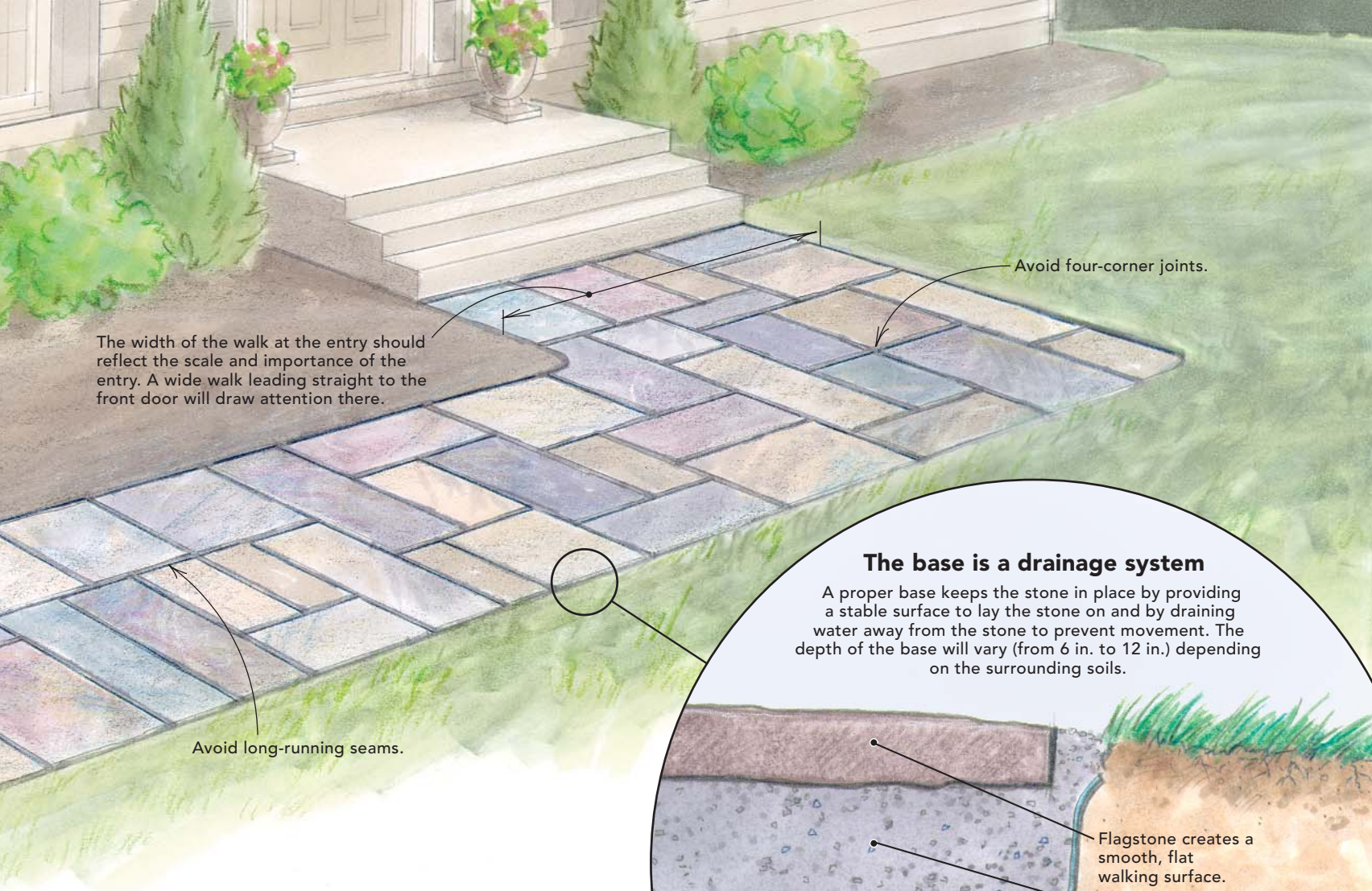
Before you break ground

The best path from the front door to the street or driveway is not the only thing to consider when planning a walk, but it is the first thing. Walking patterns tend to be similar. If one person cuts a corner when walking around

a garden, the next person likely will do the same thing. So when I plan the course of a walk, I think about the path I would take if there were no walk in front of me.

Although people generally take the shortest path from one place to the next, a walkway should feel comfortable. I like to pull the walk away from the house so that it doesn't feel crowded and people can comfortably look at the house or gardens while using the walk.

The distance between the walk and the house also can affect the perceived size of the house (drawing above). For taller houses, like colonials, I usually recommend a walk that is farther from the house, say 12 ft. For a ranch



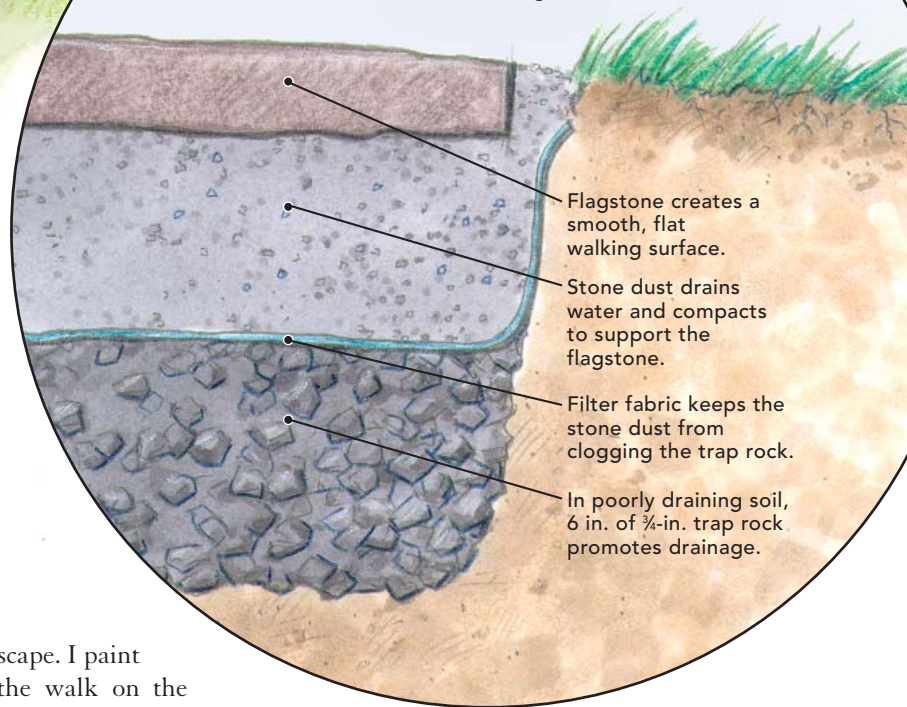
The width of the walk at the entry should reflect the scale and importance of the entry. A wide walk leading straight to the front door will draw attention there.

Avoid four-corner joints.

Avoid long-running seams.

The base is a drainage system

A proper base keeps the stone in place by providing a stable surface to lay the stone on and by draining water away from the stone to prevent movement. The depth of the base will vary (from 6 in. to 12 in.) depending on the surrounding soils.



PLANNING

Once you've determined the best path, draw the complete stone pattern on graph paper. It helps when ordering stone and saves time when laying it. It's easy to draw the pattern because modular flagstone is sold in 6-in. increments. It is best not to lay stones smaller than 12 in. by 18 in. Stones as large as 30 in. by 36 in. can be handled by one person.

or Cape, 6 ft. may be enough. Also, the space between the walk and the house likely will be a planting bed, and it is a good idea to give new plants plenty of room to mature.

I also consider the house's style when I decide whether the walk should be straight or curved. While putting a slight radius on corners softens the look of a straight walk, a curved walk can be tricky because people don't naturally walk in a roundabout path from one place to the next. However, in the right landscape, a curved path can add character and give planting beds an interesting line to play off.

A drawing is a great way to plan a walk, but it isn't the best way to visualize how it will

look in the landscape. I paint the outline of the walk on the ground to create a better sense of what it will look like (photo facing page).

A pattern speeds up the process

Once I've decided on the path for a walk, I take the measurements on site and then head inside, where I draw the walk on graph paper. As a general rule, a flagstone walk should be between 3 ft. and 4 ft. wide. A walk less than 3 ft. wide can feel awkward and clumsy to walk on.

First, I outline the walk on graph paper and draw in individual stones. As tedious as this

process sounds, it speeds up the construction and allows me to make sure that the walk's pattern is balanced and pleasing to look at. Also, some rules for laying flagstone (drawing above) are easier to observe when the pattern is drawn on paper than when my attention is focused on laying stone.

Laying out the walk on graph paper provides me with a list of stone sizes. And when it comes time to lay the walk, I know how the stones fit together and can focus my attention

EXCAVATION

Pay attention to the depth of the hole and make a plan for the soil being removed.

SAFETY TIP

Call before you dig!

Disrupting a wire or a gas pipe can be a dangerous and costly mistake. Most states offer call-before-you-dig services that will visit your site and locate underground utilities. It won't cost you anything but might save you a lot—and in some states, it's the law.

A machine makes digging easy. For bigger projects it may be worth renting a machine or hiring an excavator. Use the excavated dirt to raise the surrounding grade, or have a disposal spot in mind.



Hand-digging is low impact. Digging with a shovel has less impact on the landscape than bringing in machines, and a shovel is easily controlled when you are shooting for a particular depth for the base.



Tamp the soil before you install the base. The next step for the walk is to create a base that will not settle. It's a good idea to tamp the soil first to compact any soil loosened during excavation.

on laying the stone rather than trying to figure out what size stone should come next.

Flagstone is quarried, not perfect

Flagstone is easy to work with, easy to walk on, and reasonably priced. But it's not perfect. Although the stones are cut to a specific size and thickness, they're not all the same. An average pallet of flagstone will have some oddly shaped and colored stone, some stone with

cracks, and some stone with horizontal seams that make them prone to splitting.

Because of these irregularities, hand-picking stone at the supply yard is time well spent. Even if you're having it delivered, ask the supplier if you can pick the stone. Be on the lookout for warped stones, irregular shapes and thicknesses, odd colors, cracks, and chips.

Flagstone thickness can range from 1 in. to 4 in. For a walk, I like to use 1½-in. to 2-in.-

thick stone (sidebar below). It costs a little more but doesn't break as easily as 1-in. stone. And although it is heavy enough to stay put, it's not too heavy to work with. Only the largest sizes require two people to set.

Stakes and string guide you through walkway installation

When it comes time to break ground, stakes and string replace paint. The string repre-



Choosing and ordering trap rock, stone dust, and flagstone

Trap rock and stone dust sell by the ton

One cubic yard of trap rock or stone dust weighs about 1.5 tons. Use the following formulas to estimate your needs:

Sq. ft. of walk surface x depth (in feet) of base ÷ 27 = cubic yards of base material

Cubic yards x 1.5 = tons of base material

Buy stone dust, not sand

Stone dust drains water and compacts better than sand, two qualities that prevent the stone from settling or moving. And don't skip the filter fabric: It keeps the stone dust from washing into the trap rock below.



INSTALL THE BASE

Use the string as a guide and make sure everything is compacted well to avoid settling later.

Install the base a little at a time. Spread the trap rock in 3-in. layers and tamp each layer to be sure that it is compacted from top to bottom. The surface of the trap rock will appear compacted after one pass, but continue to tamp the entire walk at least two more times.



sents the finished grade of the walk. You sometimes can set the grade of the walk by eye, particularly when the walk follows the natural grade of the landscape. But when the walk or a portion of the walk needs to be either perfectly flat or slightly pitched, a builder's level or a transit may be necessary to set the grade.

The string continues to come in handy as the project progresses. During excavation, you can avoid overdigging by measuring down from the string. The string also reveals where the existing grade needs to be raised or lowered to meet the new walk.

When it comes time to lay the flagstone, the string provides a guide for the top and outside edges of the stone. I still need to use a level on each stone, but the string offers a starting point and a line to keep the walk's edges straight. I use mason's string because it's braided and is less likely to stretch than wound string. Still, you need to be sure the



Hand-tamp the corners. With a gas-powered compactor, it is sometimes hard to get into the corners and near the house. Don't ignore these places; use a hand tamper.



Filter fabric divides the layers. Filter fabric keeps the stone dust from infiltrating the trap rock. Filter fabric is easy to cut with a knife, but have some rocks or hand tools around on a windy day to hold it down until you put in the first layer of stone dust.



Pick the flagstone yourself

Flagstone varies in thickness and quality, and time spent in the stoneyard selecting flagstones will be more than made up with time you save laying them. Look for flat, square-cornered stones with no cracks. Avoid stones thinner than 1 in.





LAY THE STONE

Adjust the base for the contours of the stone, level it, and pack the seams so that it can't move.



Read the bottom of the stone and level the top. Adjust the base so that the entire bottom of the stone is in contact with the stone dust. Then use a level to check that the top is level and flush with adjacent stones.



Make small adjustments without picking up the stone. A 5-lb. hammer and a block of wood make it easy to lower stones without picking them up. Pounding on the stone also tamps any dust you have added while laying the stone.



Pack dust under and between the stones. To make sure that the stone is sitting in plenty of dust, use a trowel and chisel to work dust in around the edges. When the walk is complete, repeat this process for the seams to keep the stones from twisting.



string is pulled tight, and reset every day; otherwise, it will sag, resulting in a dip in the walk.

The function of the base is drainage

Because water and frost are usually responsible when stones move, a base that drains water away from the walk's surface is essential. The same base system described here works great for brick and concrete pavers (drawing p. 69).

It's always a challenge to determine how deep a base needs to be. In a dry area with good drainage, 6 in. of stone dust may be all that is necessary. It all depends on the exist-

ing soils. Sand and bank-run gravel provide excellent drainage and require a less-extensive base than hard-pan soil or clay.

In wet locations, I often dig a 12-in. base and use both trap rock and stone dust, separated by filter fabric, to promote drainage. The materials are inexpensive, so I would rather overbuild a walk and have it last than underbuild and a year later have to fix the stones that have moved or loosened.

The last thing you want to do is spend hours or days preparing a base just to have it settle after the stones have been set. I use a gas-powered tamper to compact the base (photo p. 70). If you don't own one and can't borrow one, it is worth renting a gas-powered tam-

per to build a walk because it does a much better job than a hand tamper.

Laying stone is the fun part

When you lay the stone, it is important that it is set at the correct grade, is level, and is even with other stones. It is also important that the entire bottom of the stone is touching the base to prevent rocking and cracking. Begin at the house, and work your way toward the driveway. If the walk meets steps anywhere along the path, measure the risers and make the step onto the walk the same height. Lay stones across the walk so that you never have to make the stone you are working on meet more than two other stones' edges.

Even when I have strings on both sides of the walk and the tops of the stones appear to be even, I use a level to double-check everything (photo bottom left, facing page). If the walk meets the foundation, I pitch the walk slightly away from the house to shed water.

For the most part, laying flagstone is trial and error. You have to set down the stone first to get an idea of what needs to be done to make it sit flat. Sometimes you need to add stone dust, sometimes you need to remove it, and sometimes you need to do a little bit of both. But always tamp any dust that you add or loosen during this laying process.

Once I have gotten the stone level, I lean or step on the corners and around the edges to make sure that it doesn't rock. Then I make my way around the edges of the stone with a trowel and chisel, working loose dust underneath the stone and packing in the dust (photos center right, facing page). If the tool slides easily under the stone, I know the stone has a pocket underneath it where it is not sitting on the base.

Fill the joints with a trowel, not a broom

The last step in laying a walk is to fill the seams with stone dust. Most people simply sweep dust into the seams. I think this is a mistake. Stone dust in the seams keeps the flagstone from shifting, so I work dust into the voids with a trowel (photo bottom right, facing page). It's important to work dust into the voids and not just pack it down. Don't begin this process until the entire walk is laid in case you want to move stones to straighten seams. □

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Photos by Brian Pontolilo.

Three ways to cut flagstone

With a diamond blade, you can cut right through the stone

Renting a gas-powered saw is a good idea when a lot of cutting is involved. With a diamond blade, make the cut in at least two passes, and wet the stone to keep it and the blade from overheating. Keeping the blade and stone cool makes cutting easier and protects the life of the blade.



The score-and-snap method

Another way to cut stone is to score it with an abrasive, or masonry, blade, and snap it with a hammer and chisel. Make the score deep at the edges, and then chisel the kerf, working your way across the stone until it snaps.



Cut curves in place

The easiest way to cut curves is to do it after you have laid the stone. Cutting the stone in place saves time and lets you make sure the cut lines up with the adjacent stones. An angle grinder and a diamond blade work best on a tight radius.

