

Chapter 22

DITCHES AND DRY WELLS; DRIVEWAYS AND WALKS

Rainfall Disposal

If you are building in a location where there are storm sewers, the discharge from the roof gutters can be connected into them with drain tile and your problem is over. For those without this convenience, there are several alternate plans.

It is a bad idea to allow the water from gutters to flow from the openings of the downspouts onto the earth. In the first place, there is a good possibility that this water will eventually find its way into the basement. Another drawback is that the water will wash away the topsoil in this area and make it impossible to grow a lawn or have a garden in the immediate area. Sometimes a concrete slab is put down right under the downspout and this deflects the water somewhat, but it is not too efficient. A better method is to have a concrete strip around the entire foundation wall at grade level. This should be 3' wide and there should be a slight joint between it and the foundation wall. The joint can be packed with asphalt felt, tar or caulking compound.

Dry Wells and Ditches

The most effective way to take care of rain water is to bring it from the downspouts to a dry well or blind ditch. A dry well can be built exactly like a cesspool. The opening of the downspout is connected to it by means of drain tile laid underground. Joints should be packed tight with mortar and the top of the downspout should be covered with a wire cage to prevent leaves and other debris from flowing into the dry well and eventually filling it up. A very simple type of dry well can be made by taking the bottom out of a barrel and sinking it in the ground. Fill the barrel up with small rocks and then bring in a line from the downspout. Wire netting is placed over the top of the barrel and this in turn is covered with topsoil. A blind ditch is nothing more than a long ditch filled with rocks. The line from the downspout is brought into the ditch and then the ditch is covered with topsoil. The ditch should have a slight pitch so that the water will drain through it and be absorbed by the surrounding soil.

DRIVEWAYS

Concrete Driveways

A good solid driveway from the main road up to your house is essential, not only for the convenience of the family, but so that deliveries of fuel, groceries, etc., can be made with a minimum of effort. In planning a safe driveway there are two main points to consider. First of all, it should not slope too steeply to the road. Try to grade your driveway so that it is as level as possible. Another safety factor is to provide enough room at the end of the drive or at some other point so that a car or

small truck can be turned around. Backing down a steep drive into a busy thoroughfare can be a very risky business.

There are two types of concrete drive that you can use. One is the ribbon type of drive, which is made of two ribbons of concrete 2' wide with a space between them of 2'10". This is the least expensive type of drive to build, but even with curbs on the outer edges of the ribbon, there is a chance that a careless driver will run off the ribbons and damage the adjoining lawn or gar-

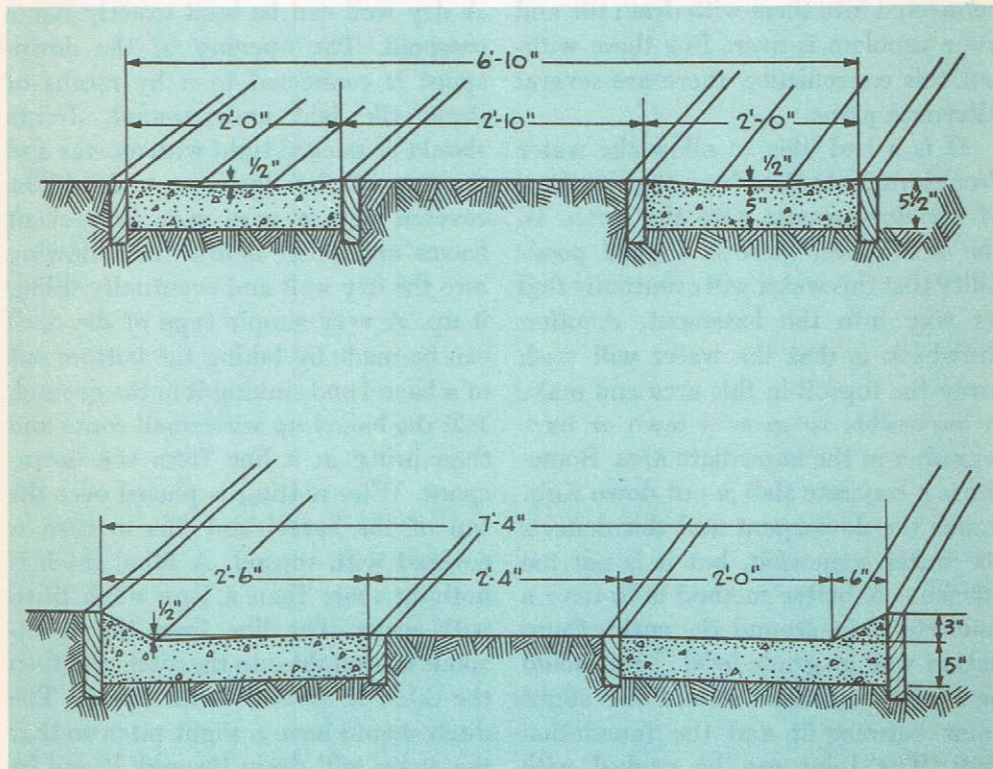


Fig. 1. Ribbon type of driveway, with and without curbs.

den. The slab type of concrete drive with curbs on the edges is much better, for there is less possibility of driving off it.

Building a Ribbon-Type Drive

It is very important when building this type of drive that the sub-base be compact and solid. If it is not, your drive is going to crack very easily. If the subsoil is well drained, you do not need any special base, but if it is clayey, you should use a base of gravel or cinders 6" thick under the slab. The slab itself should be 5" thick unless heavy trucks are going to go over it, in which case it should be 6" thick. See Fig. 1.

The first step in making the driveway is to lay out the forms. Either 2" x 6" or 2" x 8" lumber can be used for this job. The pieces are set on edge and stakes driven in along the outside to hold them in place. You will need spacers the width of the ribbon placed between the two side forms to hold them the right distance apart. They should be placed every 6 feet. A ribbon without curbs should be 2' wide, but if you plan on a curb, increase this to 2'6" for each ribbon. Fig. 1 shows a simple method of forming the curb. If there are curves in the driveway, the forms for these can be made out of plywood.

Expansion Joints

You will need an expansion joint in the driveway every 40 feet or so. You should also have one where the drive-

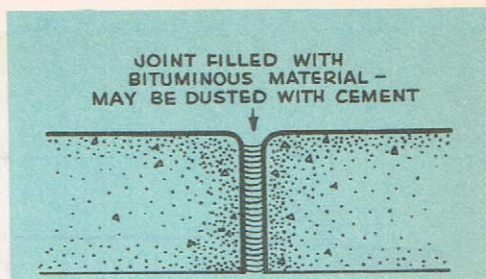


Fig. 2. An expansion joint between two concrete surfaces filled with a bituminous material.

way joins the apron of the garage or any other concrete or masonry work. If expansion joints are not used, there is danger of the concrete's cracking. Expansion joints can be made by placing a strip of asphalt felt between two sections before the fresh concrete is poured, or by leaving a space and filling it later with a bituminous compound. See Fig. 2.

Pouring the Concrete

Refer to the table given in Chapter 5 for the correct mixture to use for this job. The entire ribbon is not poured in one operation. Alternate 6-foot sections

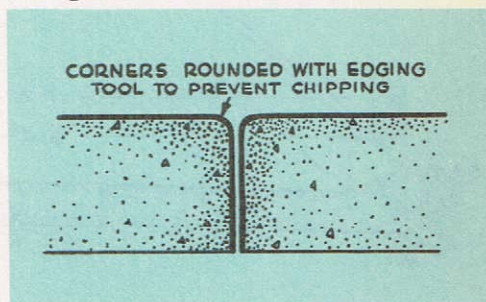


Fig. 3. The edges of adjoining sections of concrete should be rounded off to prevent their chipping.

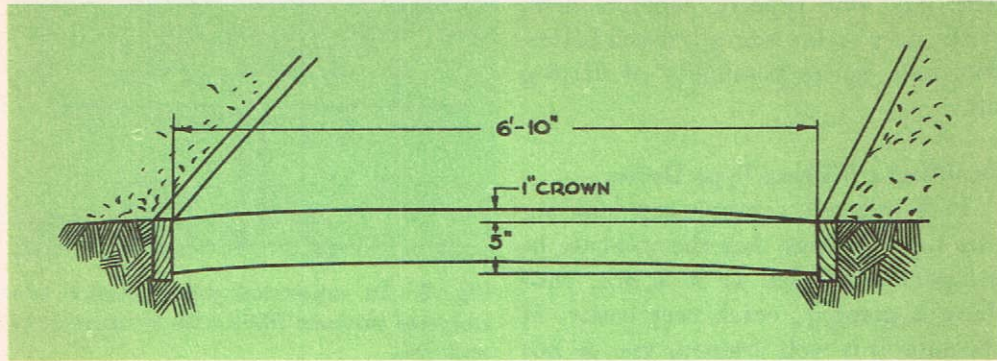


Fig. 4. A simple type of concrete slab driveway.

are poured and then, when the concrete is sufficiently hard, the spacers are removed and the remaining sections are poured. This allows for a slight expansion joint between each 6-foot section. The corners of the sections should be rounded with an edging tool to prevent chipping. See Fig. 3.

A Slab-Type Drive

Drives of this sort without curbs should be 6'10" wide. See Fig. 4. If curbs are to be installed, the over-all width of the drive is increased to 7'4",

which allows for two curbs 6" thick on each side. See Fig. 5. The same precautions in preparing the sub-base and using a fill in clayey soils apply to this type of drive as to the ribbon drive. The slab type of drive should be 6" deep if it is to handle heavy trucks. To allow for proper drainage, it is best to have the top of the concrete slab about 2" above the finished grade. The driveway should also be given a slight crown so that water will drain off. Fig. 6 shows a driveway with such a crown. A board with a hollowed-out edge is used to

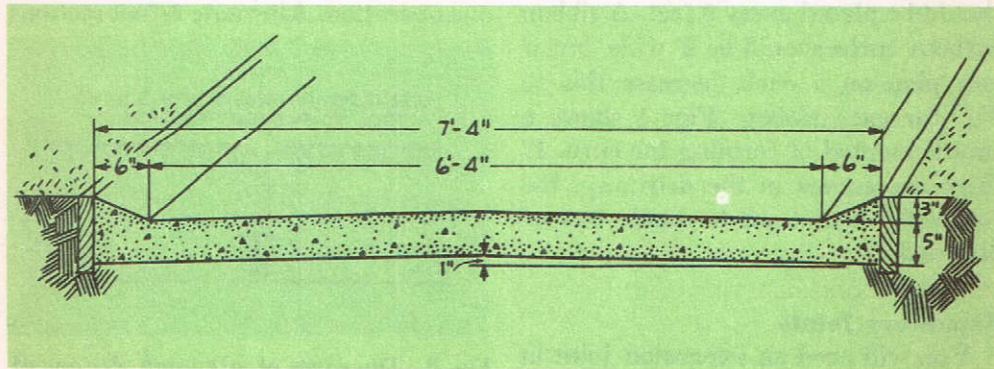


Fig. 5. Curbs on the edges of the driveway will prevent vehicles from running off the concrete strip and damaging the lawn or garden.

make the crown. This board is placed with its ends on the top of the form boards and is then worked down along a section of the fresh concrete, molding it to the slight crown desired. The forms for a slab driveway, along with

the expansion joints, the mixture, and the method of pouring are just the same as those used for the ribbon type.

When you are working over the surface with a wood float, make certain not to remove the crown.

WALKS

Concrete Walks

You can have either concrete-slab walks or concrete-flagstone walks. A slab walk should be 4' wide and 4" thick. For small, back entrance walks, you can reduce the width to 3' but the thickness should remain the same as for the wider walks.

The subsoil should be graded and tamped down so that it is solid. If the soil is not well drained, you will need a 6" cinder base under the concrete, just as you do for a driveway. If you find that the walk must go around a tree, be sure to make allowance for the growth of the tree. If you do not, you will find that the tree will break up your walk as it grows.

Forms for the walk can be made out of 2" x 4"s on edge with stakes on the outside to hold them in place and separator pieces running between the two sides. The location of these pieces will depend on how long you want each square of concrete to be. As a rule, they are placed every 4' or 6' apart. You will need expansion joints for this type of walk every 40 feet or so and at all the points where the walk joins other masonry. The walk should be given a slight crown so that water will drain

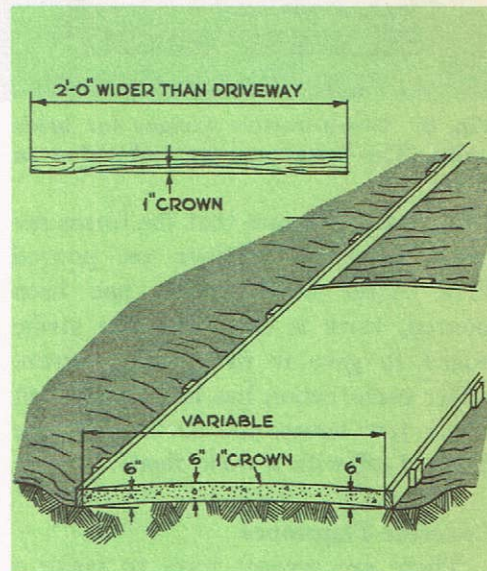


Fig. 6. A concrete walk or drive should be given a slight crown so that water will drain off easily. Detail at top of picture shows the board used to make the crown.

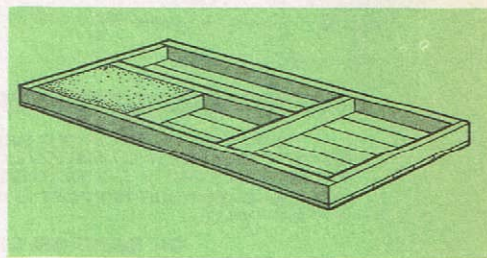


Fig. 7. Forms for making concrete flagstones can be made out of 2" x 4"s.

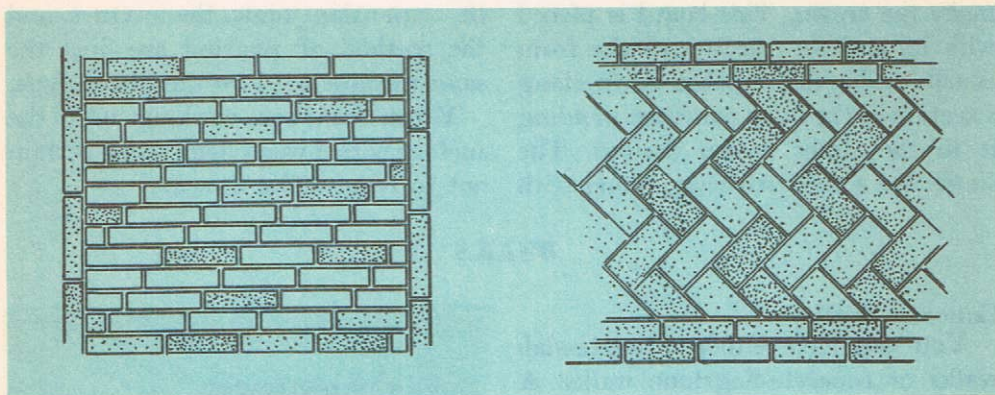


Fig. 8. Two attractive designs for brick walks. The bricks can be laid either in

sand or on a concrete slab with a mortar bed.

off it easily. Be sure that the forms are level. Alternate sections are poured first. After each section has been poured, work it over with the strike board to give it the proper crown. After each section has had time to set for a few hours, the surface can be finished off with a wood float.

Concrete Flagstones

There are several ways to make a concrete-flagstone walk. One method

is to construct a form to make the flagstones with and, when they are hard, to set them in place. Fig. 7 shows a simple type of form for this purpose made out of 2" x 4"s. This form will produce flagstones for a walk 18" wide, but of course, you can use any arrangement of the stones to produce any width of walk you want. The bottom of the form is made of sheathing boards.

The form should be put together on a level piece of ground and the nails

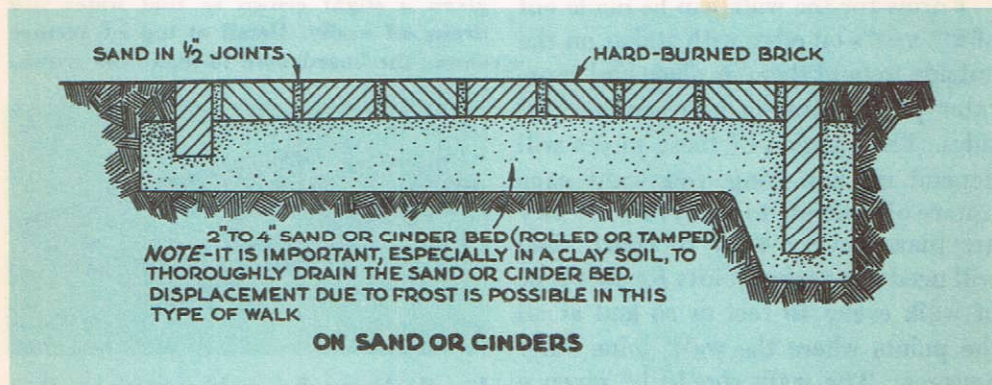


Fig. 9. How a brick walk or terrace can be laid on cinders or sand.

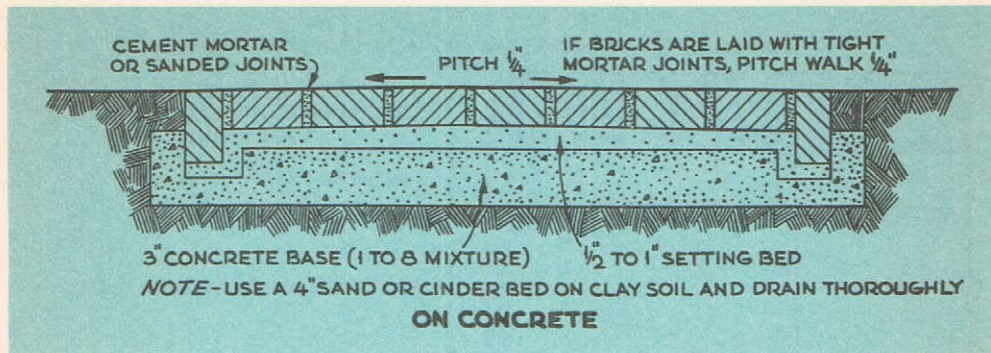


Fig. 10. Brick walk or terrace with concrete base.

should not be driven in all the way because this will make it difficult to remove them after the concrete is hard. Let the heads stick out about $\frac{1}{4}$ " or so. Oil the inside of the forms to prevent the concrete from cracking. Pour the concrete into the forms and after it has had a while to set, finish off the surface with a wood float. At the end of two days, the forms can be stripped off, but be careful not to damage any still soft concrete. Put the blocks someplace where they will not be damaged and

keep them covered with damp burlap or straw for at least ten days before they are put into use.

Another method of making a concrete-flagstone walk is to pour the concrete into holes made in the lawn. The first step here is to mark out the walk with strings. After this, dig out about 4" of sod and soil in whatever shape you want the flagstones to be. Make sure that the edges of these holes are upright. When this has been done, the concrete can be poured into the holes.

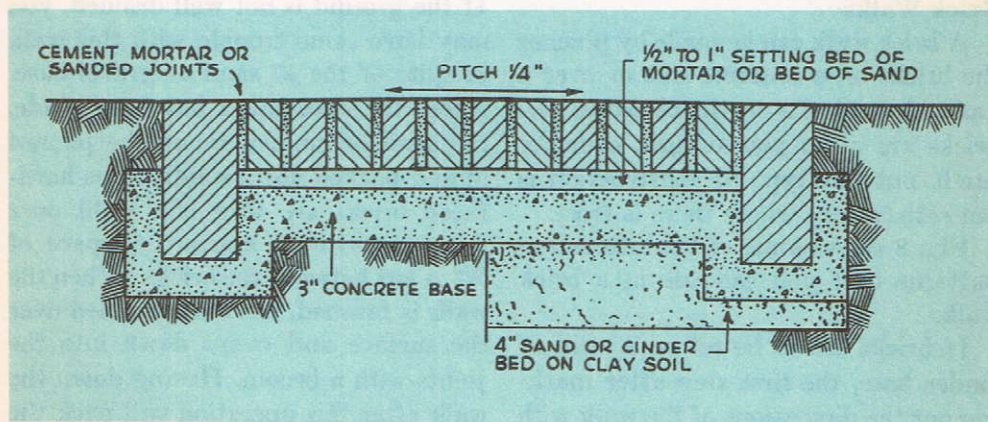


Fig. 11. Brick walk on concrete base with bricks set up on end.

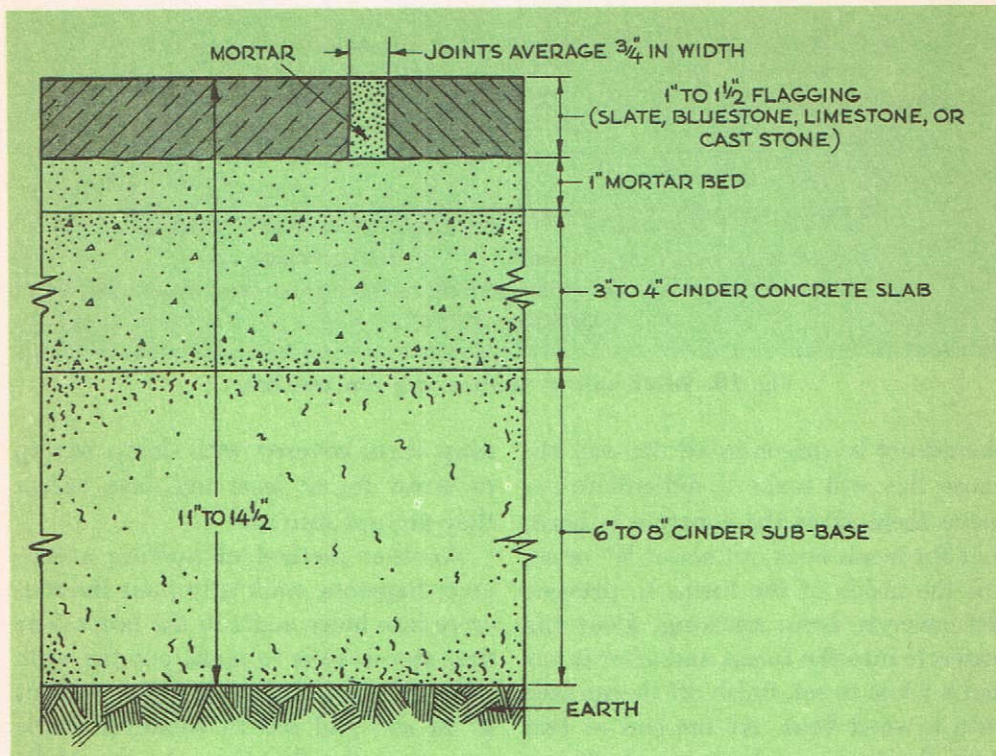


Fig. 12. Slate laid over a concrete base with the joints between slabs of slate filled with mortar. This is the best type of construction to use on outdoor terraces.

Brick Walks

A brick walk can be made by placing the bricks on a concrete slab or over a base of sand. In warm climates, the bricks are often placed right over the earth, but this type of construction is not satisfactory where there is frost.

Fig. 8 shows some of the interesting patterns that you can use in a brick walk.

If bricks are to be set on a sand or cinder base, the first step after marking out the dimensions of the walk with parallel lines, is to dig for the sub-base.

If the ground is not well drained, you may have some trouble with this walk in spite of the 4" sand or gravel base. After the excavation has been made, the sand or cinders should be poured in and packed down solidly. The hard-faced bricks are then laid right over this base without mortar. A space of $\frac{1}{2}$ " is left between the bricks. When the walk is finished, sand is sprinkled over the surface and swept down into the joints with a broom. Hosing down the walk after this operation will pack the sand into the joints. Apply any addi-

tional sand necessary to fill the joints to the top of the bricks. See Fig. 9.

A brick walk on a concrete base is much more durable than one put over a sand base but, of course, it requires much more work. You will need a 4" bed of cinders or sand under the concrete if the soil is not well drained. The concrete base should be 3" thick. This base should be poured in the same manner as a concrete walk, that is, it should be poured in alternate sections with expansion joints where necessary. Over the concrete base, a ½" or thicker setting-bed of mortar is applied. This is given a slight crown so that water will drain off the finished walk. The bricks are dampened and then set into this base. The joints between the bricks can be packed with mortar or they can be

left open and filled with sand. See Figs. 10 and 11.

Natural Flagstones

Natural flagstones of slate, limestone or bluestone make an excellent material for the terrace or the walks. They can be laid on either a concrete slab or on a base of cinders. For the most part, when the stones are used for a terrace or some other spot where furniture is going to be placed, they should be set in concrete. This will eliminate that common hazard of sitting down in a chair and having it suddenly list over to one side as one of the legs sinks down into the earth between two stones. See Fig. 12.

When the stones are going to be set in concrete, you want a 6" cinder base

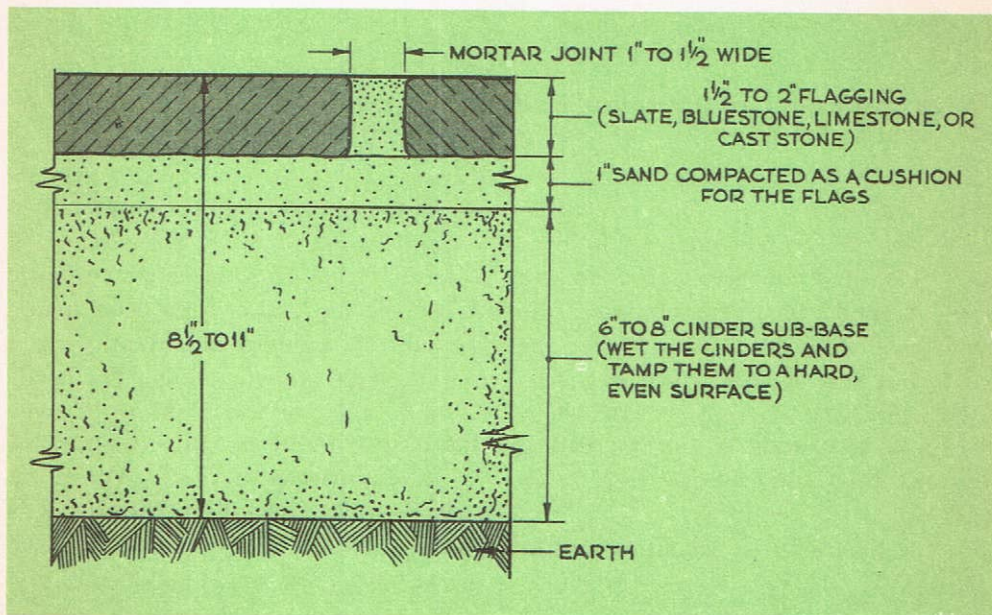


Fig. 13. Slate laid over a cinder base with mortar between the sections of slate.

under a 4" slab. The stones are set in a 1" mortar bed with $\frac{3}{4}$ " joints between the stones. The joints should be filled with mortar. When the stones are laid without a concrete base, you want about 8" of cinders that are packed

down until they are a solid mass. Over this base, a layer of sand 1" thick should be applied. The stones are then put in place and the joints between them filled with either earth or mortar. See Fig. 13.

