



Add a Belgian Block Driveway Apron

Granite pavers add style and strength to dreary driveways

BY FABIANO CRUZ

Back in the horse-and-buggy days, it was common to see Belgian blocks paving American city streets. There's a lot of sketchy scholarship about where these granite blocks came from and how they got their name, but this much is true: They can take a pounding and look good doing it. Despite these advantages, they were pretty much done for when cheaper and easier concrete and asphalt pavements came on the scene.

Still, Belgian blocks are a popular go-to when cities or homeowners want to dress up a space. You probably see them most often in curbs along streets and paths. In the part of Connecticut where I live, a lot of driveways have Belgian-block aprons. These aprons add more than style; they also pro-

vide a visual transition from the blacktop of the residential streets to the (usually) gravel driveways, and they keep the small stones from spilling into the road. At this house, a second apron also provides a transition from the gravel drive to a blacktop parking area by the garage.

Because these aprons are so common in this area, a lot of masons are asked to build them, and often they're treated like a cast-paver installation. I've seen many that have gone bad. If Belgian blocks are laid on a base of gravel and sand—common practice for some segmental pavements—they'll rut and shift. Belgian blocks don't interlock like concrete or clay pavers, so they need a solid base and hard joints to handle vehicle traffic. Get those details right and Belgian-block aprons

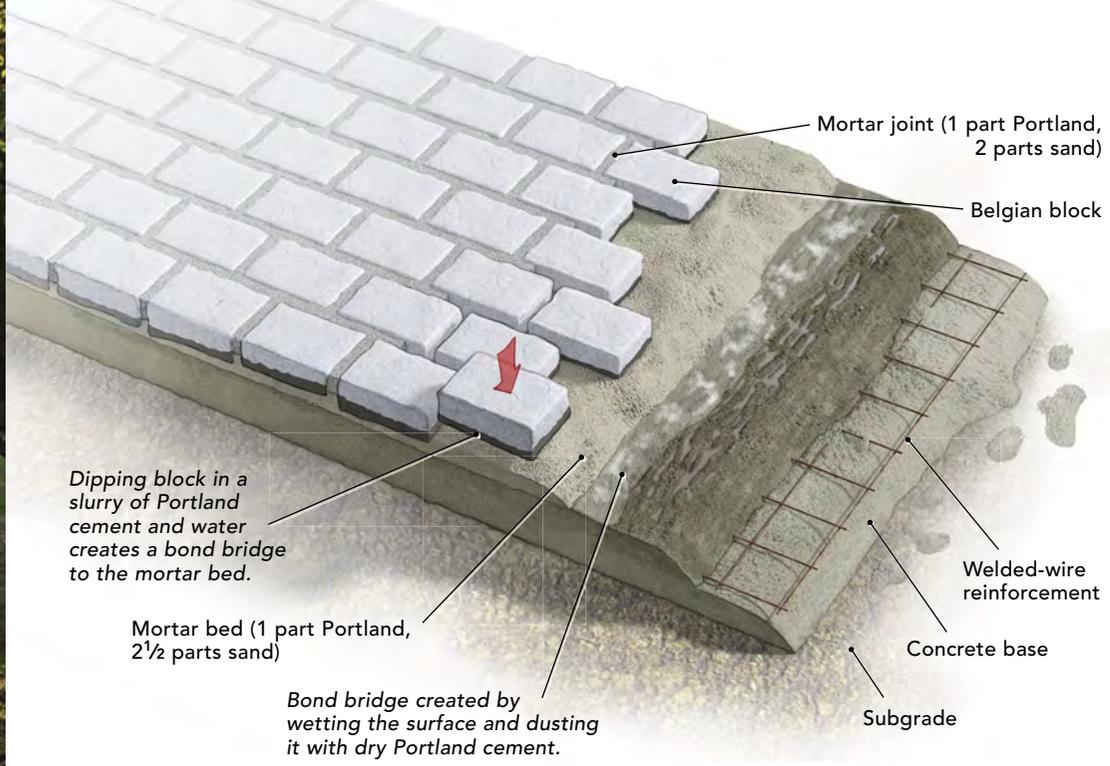
(or entire driveways, for that matter) will stay where you put them and last a lifetime.

Build the base

To stand up to heavy loads, these aprons should be constructed in three layers: a reinforced concrete base, a mortar bed, and the mortar-jointed Belgian blocks on top. The whole assembly is about 1 ft. thick and should be built on undisturbed soil.

The concrete base is 6 in. thick, but it doesn't require the precision of a normal slab. Here we set a stringline on one edge and measure down to check our concrete depth along that side, and use a 2x8 form board as reference on the other (photos facing page).

We place half the concrete, lay-in welded-wire reinforcement, place the rest of the con-



THREE-LAYERED APRON

Unlike in a common paver patio, Belgian blocks for a driveway apron are set in a mortar bed laid atop a 6-in.-thick reinforced concrete base. Because the blocks aren't uniform in any dimension, the thickness of the mortar underneath each block varies, but averages about 2 in. A bond bridge of Portland cement and water binds the layers together.

Dipping block in a slurry of Portland cement and water creates a bond bridge to the mortar bed.

Mortar bed (1 part Portland, 2½ parts sand)

Bond bridge created by wetting the surface and dusting it with dry Portland cement.

Mortar joint (1 part Portland, 2 parts sand)

Belgian block

Welded-wire reinforcement

Concrete base

Subgrade

SET THE BASE

Reinforce the slab. The edges of the excavation typically make sufficient forms for the concrete. Place and rake flat half of the concrete, then lay the welded-wire fabric followed by the rest of the concrete.



Bond bridge. After the slab has set, wet it thoroughly and dust with cement to create a bond bridge for the mortar bed.



Place the bed. Mix and place enough bedding mortar to keep pace with block laying so the mortar doesn't dry out or set prematurely.



Compact and tooth. Compact the concrete with the faces of the rakes, and leave the impressions to key into the bed mortar for a stronger bond.



CUTTING BLOCK

Blocks will have to be cut to fit at the ends of the apron, often at angles. A hand tracer (a type of chisel) and hammer can do the job, but a gas-powered masonry saw can do it quicker.



Mark the cut. For angled cuts, measure the distance from the corner of the block to the edge of the curb, then transfer that measurement to the other edge of the block, and trace a line from that point back to the corner you measured from.



Cut partway. When cutting blocks with a powered masonry saw, cut about one-half to three-quarters of the way through.



Break it off. Use a rock hammer or engineer's hammer to break the block on the cutline.



Rough it up. Use light to medium hammer blows to roughen the clean-cut edge for a more natural or tumbled look.



Place and pound. Set the cut block, leaving joint space for mortar along curbs. Hammer down until the top edge is aligned with the stringline, keeping one hand on the block to keep it from shifting.

crete, rake it roughly flat, and compact it with the faces of the rakes. We leave the toothed rake impressions on the surface to give the mortar bed a better surface for bonding. In 24 hours, it's ready for the next layers.

Make the bed

Taking any slope into account, we mark the final elevation of the Belgian block onto curbing, if it's included, or use a stringline if there are no curbs. Another stringline establishes the front edge and elevation of the first course (photos p. 45).

I like to use Type II Portland cement in all the mixes for the aprons. The mortar used for the bed is one part Portland to two-and-a-half parts sand, with just enough water to activate the Portland. It looks and feels almost like plain sand, but will be as tough as concrete once the blocks are hammered down into it and it sets. Before laying down the mortar, thoroughly wet the concrete base and dust it with cement to create a bond bridge between the slab and the mortar bed.

Helpers mix enough bedding mortar to stay ahead of the block layers. Because the blocks vary, the actual thickness of the bedding layer varies, but it averages roughly 2 in. We put down mortar only in the areas we're laying at the time.

Lay the block

Belgian blocks aren't uniform like bricks, so it takes more work to make everything look tidy. Lay each block with the flattest face up and keep the widths of individual courses consistent to maintain straight lines. Sorting the blocks into piles or rows of similar widths makes them easier to pick through.

How and where to start laying depends on the situation. On narrower aprons, we typically lay full blocks for each course at both ends to start, use stringlines along the width to set the courses straight and level, and use levels to check that the blocks are in plane across the depth. This apron was wide—more than 30 ft.—so we laid the full first course and the first few blocks for the rest of the courses at one end at the same time. We add and subtract mortar below each block as necessary to get them to the right elevation and then drive them into the mortar with rock hammers (photos facing page).

The blocks aren't set at this point; this part of the process is about establishing the slope and elevation, and making sure the courses start parallel to one another.

Once that work is done, setting begins. We remove the blocks one by one, coat them in a slurry of Portland cement and water—mixed to the consistency of thin pancake batter—place

LAYING BLOCK

Working with Belgian blocks is more art than science, but levels and stringlines are crucial to keep everything straight and in plane.



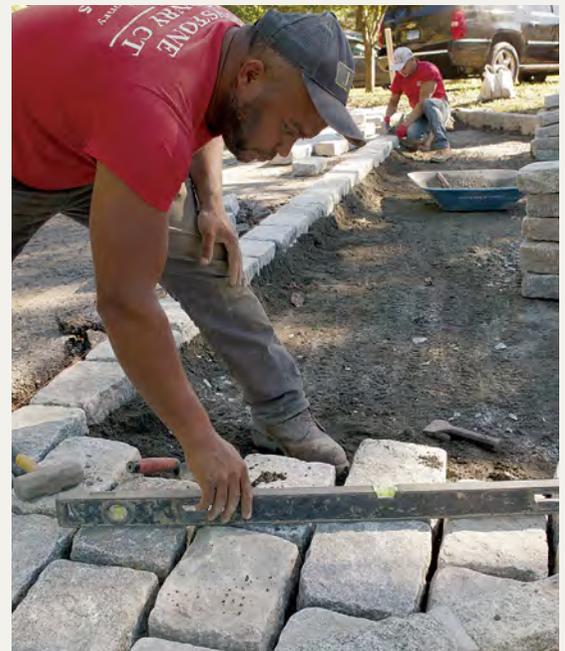
Follow the line. Only one edge of the blocks will follow a line while the other runs ragged. Using blocks of similar widths in individual courses helps keep the joints consistent.



It ain't brick. Expect huge variation in every dimension when picking through a pallet of Belgian blocks.



Adjust the bed. Add or subtract bedding mortar as necessary so each block can be firmly hammered into the bed to the proper elevation.

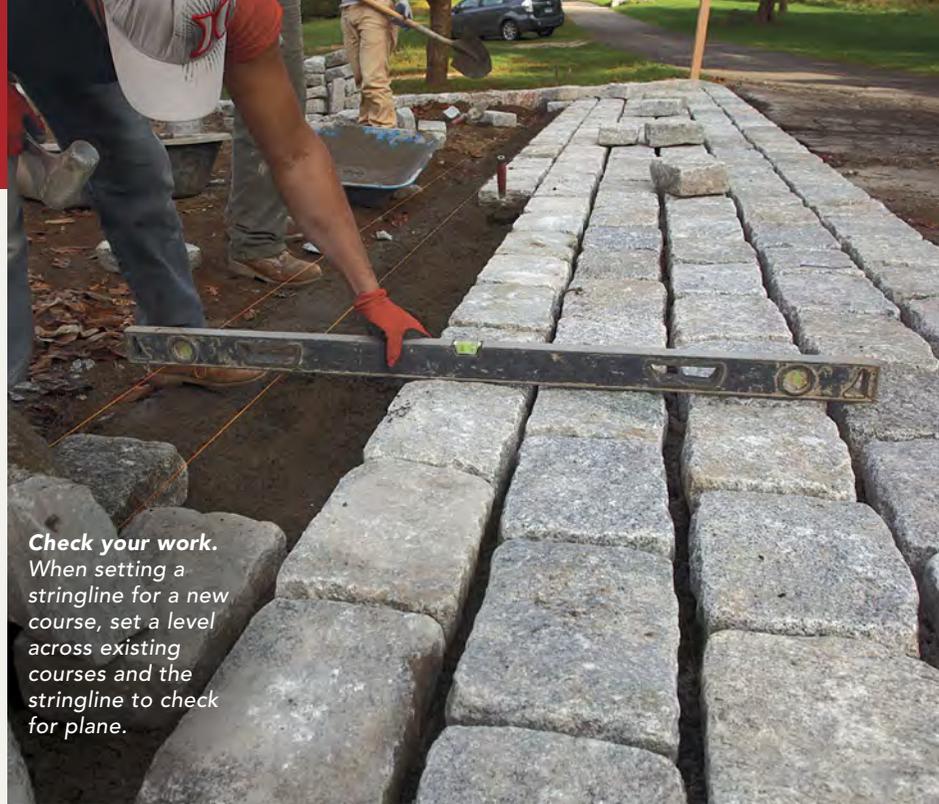


Check the plane. Use a level to check that the blocks are in plane front to back. The level should touch the face of each block in any direction.

SETTING BLOCK

Belgian blocks won't stick to the mortar bed without help. A slurry of Portland cement and water mixed to the consistency of thin pancake batter provides a bond bridge between layers.

Dip it. After a block is hammered to the right position, remove it and dip it in a slurry of Portland cement and water, which creates a bond bridge between the granite and the bedding mortar.



Check your work. When setting a stringline for a new course, set a level across existing courses and the stringline to check for plane.

Replace and hammer. Replace slurry-dipped blocks in the same orientation as you picked them up, and then hammer them home for a secure bond.



Smooth it out. Dampen the edges of the mortar bed and trowel them flat to finish them off. The edge along the first course should be troweled flat after that course is set.

them back, and hammer them to the line. Once these initial blocks are set, the rest go relatively quickly. Working from one end to the other, one or two courses at a time, each block is positioned, hammered to or near its final depth, removed, dipped in the Portland cement slurry, replaced in the same orientation, and hammered home.

Since the blocks' surfaces aren't flat, you have to split the difference when driving them down to the stringlines. The edges usually aren't parallel either, so the joints between blocks inevitably vary. I try to keep all the joints between $\frac{3}{4}$ in. and 1 in. wide. While the stringline is placed on the front edge for the first course, it's aligned with the back edge of subsequent courses.

Some blocks have to be cut to fit at the ends. This can be done with a hammer and chisel, but we usually use a masonry saw to cut one-half to three-quarters of the way through the block, then use a hammer to break it on the cutline and roughen the cut edge for a more natural look (photos p. 46).

Once all the blocks are set, we dampen the edges of the mortar bed with sprinkles of water and trowel it flat (photo above).

Fill the joints

The mix for the joints is one part Portland cement to two parts sand; the richer mix helps it flow out of the grout bag. It should be thick enough that it won't run out of the joints, but thin enough to easily squeeze out of the bag.

Slightly overfill the joints from the bottom up. When the mortar has set up a little, strike the joints with a flat slicker (a type of brick jointer) to squeeze out the excess, but don't remove it. Let it set up a bit more (to the consistency of cookie dough) so the waste doesn't stick to and stain the faces of the blocks.

After flicking off the excess, I like to tool the joints so they're slightly convex, then hit them with a single sweep of a masonry brush to give them some texture. After three days of curing, it's safe to drive on the apron and finish off the rest of the driveway. □

Fabiano Cruz is the owner of Keystone Masonry in Bridgeport, Conn. Photos by Matthew Millham.

JOINTING BLOCK

The jointing mix is one part Portland cement to two parts sand, with enough water to achieve the consistency of a thick milkshake. The mortar should easily squeeze out of the grout bag, but not run out of the joints.



Mix and remix. Start the mortar in a mixer, then transfer to a wheelbarrow and add water slowly to creep up on the right consistency.



Fill 'er up. Slightly overfill the joints from the bottom up.



Joint and flick. Let the joint mortar firm up a bit before tooling or removing excess mortar, then use a flat slicker to flatten the joints and squeeze out the excess. Let it firm up some more, then flick off the excess and finish tooling the joint so the mortar is slightly below the block face.



Blow it away. Use a leaf blower, not a broom, to remove the flicked-off mortar so it doesn't smear and stain the block.



Brush it out. Hit each joint once with a masonry brush for a clean finish.