

that may have become broken or loosened must be taken up and new material laid in its place with the same care as the original.

Laying Binder Course.—Nearly the same care in raking and equally as careful rolling should be required as for the surface course. If the binder is not thoroughly compressed and becomes cold before the surface course is laid, it is likely, in the future hot weather, to soften and yield under heavy travel, and thus start small depressions in the pavement.

Laying the Surface Course.—The joints against a cold edge of previously laid surface must be cut back until solid, fully compressed material of full thickness is reached, and the raw edge completely but thinly painted with liquid bitumen. No masses or fragments of cold mixture must be allowed to remain on the surface of the binder, in advance of the placing of the surface course, to be covered up by the latter. Such cold masses will not be compressed by the roller, but will later, under the hot sun and heavy travel, yield and start depressions in the pavement. The raking requires to be properly and skilfully done. The tines of the rake must penetrate to the binder, so that the raked material will be a uniform mass from top to bottom.

Rolling.—The inspector must insist upon the roller being placed upon the freshly raked surface just as soon as the material will bear it without being squeezed out or displaced laterally. The tendency is to keep the roller off too long, thus permitting the chilling of the surface and preventing its proper compression. The inspector must not take the contractor's word as to how soon the rolling may be begun, but should have trials made until he is able to judge for himself.

The rolling of the heavy roller should be very thorough; the roller should be kept at work constantly until the surface is too cold to be impressed. In operating the roller lengthwise of the street the rolling should begin at the gutters and work toward the centre of the street whenever practicable. Cross rolling and diagonal rolling must be insisted upon wherever the width of the street will permit.

Asphalt surface must not be laid when rain or snow is falling or so long as the surfaces are wet. Surface mixture raked out and caught in a shower before it is well enough rolled to exclude water must be taken up and discarded.

Block Paving.—The more important things for the inspector to look after are:—

- (a) The quality and shape of the blocks.
- (b) The sand cushion.
- (c) The setting of the blocks.
- (d) The ramming of the surface.
- (e) The filling of the joints.

The Blocks.—Assuming that the general quality of the stone has been approved, the inspector will need only to observe and reject blocks made from soft, weathered or otherwise defective stone. Any material divergence from the correct form, or from the sizes specified as permissible, will be readily caught by the eye as the blocks are brought to the street, and such defective blocks thrown out.

The proper dressing of the blocks is important, and should be watched carefully. While the inspector is not expected to examine each individual block, close observation of the blocks as they are handled and laid will enable him to detect and reject those that are materially defective in shape or dressing; or excessively wide joints will call attention to them as they are set.

Sand Cushion.—Screened sand must be used for the cushion bed. It should be moderately coarse and must be fairly clean and pure. The tendency with contractors is to use any dirty sand or sandy loam available on the street.

Such material, especially if it becomes filled with water, will yield under the blocks and will not support them properly. The sand bed should not vary materially in thickness. It should be laid and graded not more than 50 nor less than 20 feet in advance of the setting of the blocks.

Setting the Blocks.—Blocks of uniform width and depth must be selected for each course, and each block must be laid upon a full bed of sand and "struck in" at the base, so as to bring the stone in close contact with its neighbor in the preceding course, and thus insure the closest possible joint.

The inspector must see that the joints in the line of traffic are close, and that the alignment of the course is true. This is most important, as a crooked or wavy course lessens the chances of getting close joints, not only along that particular course, but along the courses that are to follow. The inspector must see that all longitudinal joints are broken by a lap of at least 3 inches.

The operation of ramming is not to be permitted to approach within 20 feet of the end of the paving. After ramming, the surface of the pavement may look somewhat wavy and uneven. The inspector must then see that it is backrammed. All blocks below the general plane of the surface must be raised and more sand placed thereunder, and the blocks rammed again to an even bearing.

Whether sand or grit is used for partly filling the joints before paving cement or pitch is poured, care must be exercised in placing the sand or grit in the joints. Dumping a wheelbarrow load on the surface and then sweeping the joints full is not to be permitted under any circumstances.

Sand and grit or gravel should be dried before being used and put into the joints as nearly as possible to a uniform height, as called for in the particular class of granite pavement.

For pitch joints, the contractor shall remove the gravel for the depth of about 1 inch below the surface before applying the pitch. The latter should be poured into the joint while at such a temperature as to be perfectly fluid.

Clipping Old Block.—In clipping, care should be taken that all blocks are of as nearly uniform size as possible, and that the sides are even and square, in order to insure uniform width of joints.

Any block that falls below the minimum specified size after clipping shall be rejected.

Wood, Asphalt Block, Brick Paving.—The inspector must use special care in the inspection of brick, asphalt or other artificial block, and reject and prevent the use in the pavement of any broken, chipped or otherwise defective blocks. A contractor will often use such brick and lay them with the defective side or face next to the sand cushion. This should not be permitted. The contractor should not be allowed to fill the joints of any stretch or section of paving with cement, pitch or other filler, until such paving has been thoroughly examined by the inspector for defective blocks, and such blocks replaced by perfect ones.

However carefully lumber may have been inspected before its manufacture into blocks, the subsequent seasoning, treating and handling will develop many defects, and you will need to observe the delivered blocks closely and reject those that do not comply with the specifications.

Under certain conditions, wood blocks will develop a great many "season cracks" which should not condemn them unless the cracks open for the full depth and to more than one-third of the thickness of the block. What are called "shakes" result from the separation of the wood along the growth rings, and if well defined or open should condemn the block, though in many cases the blocks, after the defective part has been trimmed off, may be used.