STANDARD PAVING BLOCK SPECIFICATIONS.

THE American Society for Testing Materials, of Philadelphia, Pa., which is affiliated with the International Association for Testing Materials, has issued proposed tentative specifications for wooden paving blocks. Criticisms of these specifications are solicited and should be directed, preferably before January 1st, 1917, to Dr. Hermann Von Schrenk, consulting timber engineer, Tower Road and Flad Avenue, St. Louis, Mo. Dr. Von Schrenk is chairman of the Society's committee on timber. The proposed tentative specifications are as follows :—

Timber.—1. The wood, which shall be treated, shall be Southern yellow pine, hemlock, Norway pine, Douglas fir, or tamarack. Only one kind of wood shall be used in one contract.

2. Paving stock lumber of all species shall be 3 or 4 ins. thick, 5 to 10 ins. wide, and 8 ft. or longer, surfaced one side uniform to within 1/10 in., allowing $\frac{1}{24}$ in. from full nominal thickness for surfacing. The widths shall run full nominal size. The scale shall be on the full nominal sizes.

3. (a) Except as modified below under species headings, all paving stock lumber shall be well manufactured, green, square edge, sound-knotted, free from checks impairing the strength of a block cutting, free from wane or bark, unsound, loose or hollow knots, knot holes, ring shake, dote or decay. Defects of any character may be admitted at one point on each 8-ft. section of plank, provided such defects do not affect at one point more than 4 ins. of the length of the piece.

(b) Yellow Pine.—Southern yellow pine paving stock may be of longleaf, shortleaf, Cuban or pond pine, and shall show not less than six annual growth rings, with an average of $33\frac{1}{3}$ per cent. summer wood in any one inch measuring radically from the pith centre on one end of the timber. All measurements shall be made on a section of wood cut perpendicular to the grain.

Southern yellow pine shall further conform as to grade to the requirements specified in Paragraph (a).

(c) Hemlock.—Hemlock paving stock shall be selected No. I green, and shall further conform as to grade to the requirements specified in Paragraph (a).

(d) Norway Pine.—Norway pine paving stock shall conform as to grade to the requirements specified in Paragraph (a).

(e) Douglas Fir.—Douglas fir paving stock shall show not less than six annual growth rings, with an average of 33^{1/3} per cent. summer wood in any one inch measuring radially from the pith centre on one end of the timber. All measurements shall be made on a section of wood cut perpendicular to the grain.

Douglas fir paving stock shall further conform as to grade to the requirements specified in Paragraph (a).

(f) Tamarack.—Tamarack paving stock shall be selected No. 1 green, and shall further conform as to grade to the requirements specified in Paragraph (a).

Blocks.—4. The width of the blocks shall be either 3 or 4 ins., and all blocks for any one city block or piece of work shall be the same width. The width shall not vary more than $\frac{1}{3}$ in. over or under that specified.

5. The length of the blocks shall be not less than 5 ins. nor more than 10 ins., with an average length of 8 ins.

6. The depth of the blocks, parallel with the fiber, shall be from $3\frac{1}{2}$ to 5 ins., depending on the service. For light traffic $3\frac{1}{2}$ ins. n ay be used; for extremely heavy

traffic a depth of 5 ins., and for average traffic a depth of 4 ins. is recommended.

The depth, parallel to the fiber, shall be at least $\frac{1}{4}$ in. more than the width of the blocks. Where blocks are laid on a sand or mortar cushion, the depth may vary $\frac{1}{8}$ in. from that specified, but where the blocks are laid on a smooth foundation, without any cushion, the depth shall not vary more than $\frac{1}{16}$ in. from that specified.

Preservative.—7. The preservative shall be wholly derived from coal-gas tar or coke-oven tar, and shall conform to the following requirements:

8. The specific gravity at 38° C. shall not be less than 1.06 nor more than 1.12.

9. Not more than 3 per cent. shall be insoluble by continuous hot extraction with benzol and chloroform.

10. On distillation, the distillate, based on water-free oil, shall be within the following limits:

Up to 210°	С	 not	over	5	per cent.
Up to 235°	С	 "	"	30	
Up to 315°	С	 		70 nor under 35	
Up to 355°	C	 "	unde	er 65	

11. The specific gravity of the distillate between 235 and 315° C. shall not be less than 1.02 at 38° C., compared with water at 15.5° C. The specific gravity of the distillate between 315 and 355° C. shall not be less than 1.08 at 38° C., compared with water at 15.5° C.

12. The specific viscosity at 82° C., when taken in an Engler viscosimeter, shall not exceed 1.3. The term "specific viscosity" shall mean the number of seconds found for the sample tested, divided by the number of seconds for water at 20° C., as given in the official certificate for the viscosimeter used.

13. The oil shall contain not more than 3 per cent. of water. Oil samples taken by the inspector from the treating tank during the progress of the work shall at no time show an accumulation of more than 2 per cent. of foreign matter, such as sawdust and dirt. Due allowance shall be made for all foreign matter, either water or material insoluble in benzol and chloroform, by injecting an additional quantity of oil into the block.

14. All tests and analyses shall be made in accordance with the Tentative Methods for Sampling and Analysis of Creosote Oil of the American Society for Testing Materials.

Treatment.—15. To secure a thorough and uniform penetration of the creosote and eliminate expansion and contraction, the wood shall be properly air-seasoned or conditioned by steaming, before treatment, in the following manner:

(a) The lumber from which the blocks are manufactured shall be kiln dried or air-seasoned before being cut into blocks.

(b) After the blocks are cut and placed in the cylinder, live steam shall be admitted and gradually raised to 30 lb. gauge pressure during a period of one hour; then maintained for at least two hours, during which time and at 15-minute intervals the condensation shall be blown out from the bottom of the cylinder.

At the completion of this steaming process the steam shall be blown off and a vacuum of not less than 22 ins. applied and held for a period of not less than one hour, or until such time as the cylinder is practically free from condensation. During this vacuum period the temperature in the cylinder shall be maintained by heating coils to at least 140° F.

Creosoting.—16. After the blocks are properly conditioned a vacuum of not less than 22 ins. shall be applied