grooves) into effluent channel, sluices being arranged to direct the scum into scum pit and from thence to sludge tank. A contract has been accepted by the Corporation for the construction of this tank for the sum of \$10,500.

ASPHALT PAVEMENT SPECIFICATIONS.

(Continued from Page 626.)

in order to produce an asphalt cement of the proper consistency.

The proper proportion of the refined asphalt or asphalts and the flux shall be melted together and thoroughly agitated by suitable appliances until they are completely blended into a homogeneous asphalt cement. The asphalt cement must never be heated to a temperature exceeding 350° F. If the asphalt cement contains material that will separate by subsidence while it is in a molten condition, it must be thoroughly agitated before drawing from storage and while in use in the supply kettles. Approved methods of agitation, which will not injure the cement, must be used.

The refined asphalt or asphalts and flux comprising the asphalt cement shall, when required, be weighed separately in the presence of the authorized inspectors or agents of the engineer.

Requirements-The asphalt cement shall comply with the following requirements:

a. It shall have a penetration between 45 and 75 at 77° F., depending upon the sand and asphalt used and the traffic upon the street on which the pavement is to be laid.

b. It shall not flash below 350 deg. F. when tested in a New York State closed oil tester.

c. When heated in an open tin at a temperature of 325° F. for five hours in a hot air oven it must not show a loss by volatilization of over 5 per cent., and the penetration at 77° F. of the residue left after such heating, must not be less than one-half the penetration at 77° F. of the original sample before heating.

d. When the pure bitumen of the asphalt cement is brought to a penetration at 77° F. of 50 and made into a briquette having a cross section of one square centimeter, it shall have a ductility of not less than 15 cms. at 77° F.

Binder.

Preparation-The binder shall be composed of stone and asphalt cement of the character elsewhere herein specified and mixed in proper proportions. If the stone does not contain the proper amount of material passing the 1/2-inch screen, the deficiency may be made up by the addition of gravel or sand. The stone and the asphalt cement shall be heated separately to such a temperature as will give, after mixing, a binder mixture of the proper temperature for the materials employed. The stone when used must be at a temperature between 200 and 325° F. The asphalt cement when used must be at a temperature between 250 and 350° F. The asphalt cement and stone shall be thoroughly mixed by machinery in such proportions that the resulting binder shall have life and gloss without an excess of asphalt cement and the mixing shall be continued until a homogeneous mixture is produced, in which all the particles are thoroughly coated with asphalt cement.

Laying-The binder mixture prepared in the manner above described shall be brought to the street in wagons at a temperature between 200° F. and 325° F. and shall be covered with canvas covers while in transit. The temperature of the binder mixture within these limits shall be regu- ture of the surface mixture within these limits shall be regulated according to the temperature of the atmosphere and lated according to the temperature of the atmosphere and

the working of the binder. On reaching the street it shall at once be dumped on the concrete and then be deposited roughly in place by means of hot shovels, after which it shall be uniformly spread by means of hot iron rakes and then at once be thoroughly compacted by tamping or rolling. The depth of the finished binder shall at no place be less than 1 inch or more than 3 inches, and its upper surface shall be parallel to the surface of the pavement to be laid. The surface, after compression, shall show at no place an excess of asphalt cement, and any spot covering an area of 1 square foot or more showing an excess of asphalt cement shall be cut out and replaced with other material. Smaller spots may be dried by the use of stone dust and smoothers. All binder that shows lack of bond or that is in any way defective or which may become broken up before it is covered with wearing surface must be taken up and removed from the street and replaced by good material properly laid, in accordance with these specifications at the expense of the contractor. No more binder shall be laid at any one time than can be covered by two days' run of the paving plant on surface mixture. Binder when laid, shall be followed and covered with wearing surface as soon as is practicable, in order to effect the most thorough bond between the binder and the wearing course. The binder course shall be kept as clean and as free from traffic as is possible under working conditions. If necessary, it must be swept off immediately before laying the wearing surface upon it.

No binder shall be laid when, in the opinion of the engineer, the weather conditions are unsuitable or unless the concrete on which it is to be laid is dry and has set a sufficient length of time.

Requirements-The finished binder must contain from 5 to 8 per cent. of bitumen soluble in cold carbon disulphide, and from 10 to 30 per cent. of material passing a 10 mesh screen, the percentage of bitumen to be regulated in accordance with the mesh composition and character of the mineral aggregate of the binder and the percentage of material passing a 10 mesh screen to be regulated in accordance with the traffic conditions upon the street or streets to be paved.

Wearing Surface.

Preparation-The wearing surface shall be composed of sand, filler and asphalt cement of the character elsewhere herein specified, and mixed in proper proportions. The sand and the asphalt cement shall be heated separately to such a temperature as will give, after mixing, a surface mixture of the proper temperature for the materials employed. The sand when used must be at a temperature between 250° F. and 375° F. The asphalt cement, when used, must be at a temperature between 250° F. and 350° F. The filler shall be added to the hot sand in the required proportions and the two thoroughly mixed. The asphalt cement in the proper proportions shall then be added and the mixing continued for at least one minute in a suitable apparatus, until a homogeneous mixture is produced in which all the particles are thoroughly coated with asphalt cement. The weights of all materials entering into the composition of the wearing surface shall be verified in the presence of inspectors as often as may be required and the engineer or his representative shall have access to all parts of the plant at any time.

Laying-The surface mixture prepared in the manner above described shall be brought to the street in wagons at a temperature between 230° F. and 350° F., and shall be covered with canvas covers while in transit. The tempera-