

signing a contract make sure that all loose statements and all ambiguity is eliminated from it, and from the plans and specifications; provide for such contingencies as the occurrence of quicksand, storms, and strikes, and make sure that the contract will permit of an extension of time and an increase in compensation, to offset the delay and extra expense entailed by those contingencies. Keep accurate records, as previously suggested, of each step taken in the prosecution of the work, and of the progress made. On account of their peculiar liability to misquotation or misconstruction, have the substance of each telephone message or conversation carefully recorded.

The contractor who attends to all of these small matters systematically will find himself reasonably free from the danger of being imposed upon by misinformed or designing persons. The sense of security he will enjoy as a result of being absolutely sure of his position no matter what disputes he may become involved in, will be well worth the effort put forth in attaining it; and the slight expense incurred will be more than counterbalanced by the financial losses he will avoid.

## Experiments for Laying Dust by Coating Compounds

IN stating that the question of the suppression of road dust has been, within the last few years, a subject of constant attention on the part of Canadian local municipal authorities, the following reports upon experimental results in France will prove interesting:

Hitherto water alone was employed for the purpose, but its effect was only transitory, and the treatment had to be renewed every morning. This half measure nevertheless gave satisfaction until automobiles and road tramways began to circulate, creating, by their speed, an amount of dust as annoying as it was previously unknown. A report has just been presented to the minister of public works, reviewing the advantages and disadvantages of four methods, considered as more or less effective in laying dust—a coating of crude tar mixture, heated petroleum, a solution of water and salts, and construction of a beton and tar surface.

To the mixture of crude tar, tar oil in the proportion of 10 per cent is added to render it more fluid, and before sprinkling it on the road certain conditions are necessary—the road should be more or less cylindric in shape, recently macadamized, dry, and swept of all dust. The tarring should be done in dry and warm weather, while no circulation of vehicles should be allowed until the coating is sufficiently dry.

The durability of the coating varies as to the time of the operation, whether in summer, autumn or winter. If done in the last two seasons, the tarring seldom resists until the following spring. Very frequently it disappears at the end of two or three months leaving in its place an abundant supply of disagreeable mud. As long as the coating of tar endures, the road bed is guaranteed against wear and tear, but, once it gets diluted the road becomes deteriorated all the more rapidly, as the mud retains the water with greater facility. Although the quantity of the tar mixture employed varies with the absorbent nature of the road, a proportion of two pounds to the square yard is considered sufficient. Frost does not seem to have any evil effect on tarring, but great heat may soften it and render it slippery. The cost of tarring is estimated at 3 cents per square yard.

### PETROLEUM, SALINE AND BETON MIXTURES.

The second method, or that of petroleum heated to boiling point, is used in the north of France and around Paris. The variety of oil employed is that known under the name of "mazout." The oil is placed in reservoirs similar to ordinary watering carts and sprinkled over the roads, previously swept. It is allowed to cool, after which

the dust is swept back over it again; the dust is effectively laid and will not adhere to the car wheels. Unfortunately, autumn rains rapidly destroy this coating. In dry climates, however, the above two methods are very effective against dust.

The saline mixture consists in either plain sea water or a solution of certain salts (chloride of calcium or chloride of magnesium), which from their hygrometric properties maintain on the road the humidity of the atmosphere, thus prolonging the effect of ordinary watering. Information, however, is wanting as to the results of the experiments.

Westrumite is tar rendered soluble in water by the addition of ammonia and other cheap products. It is particularly useful in preparing a race track, as its effects are limited as to duration.

The fourth and last method is costly and has not yet been put into operation to any extent in France. It consists in constructing the road with beton or concrete, into which tar is incorporated. Further experiments are about to be made by the government, not only for the purpose of adopting the best dust-laying substances, but also for determining the effect of the operation itself on the roads.

## Montreal's New Fire By-Law

MONTREAL has put into force a new by-law providing for the strict inspection of buildings for the better protection against fire. The purpose of the by-law is to have a systematic inspection of all large buildings, which will be done by officers of the brigade in the different districts, from which reports will be made regularly to the head of the department at the City Hall.

It is expected that the work will require many months to get well in hand, as the number of buildings is so large.

The most important clauses in the by-law is found in Sections 14 and 15. The former specifically gives the members of the fire department power to inspect at all times practically every class of building except private residences. It reads as follows:

"The officers of the Fire Department are hereby empowered to enter at any time public buildings, industrial establishments, places of amusement, hotels, apartment houses, educational and charitable institutions, or any place, including all places where explosive compounds, shavings, rubbish or other materials, articles, goods or merchandise liable to cause fire are placed or kept, and to have and order same removed when said explosive compounds, shavings, rubbish and other materials, articles, goods or merchandise liable to cause fire are kept or placed in such a manner, in the opinion of the officers of the department, as to cause fire, or contrary to the by-laws governing such explosive substances, shavings, etc., and in case of neglect or refusal so to do, to cause same to be removed at the expense of the delinquent, who shall also be liable to the fine hereinafter provided."

Section 15 is most important and should be carefully considered by every city not having a similar law equally as explicit and restrictive.

Such a law, if properly enforced, will not only prevent to a large extent disastrous obstructions so often encountered by the firemen in fighting a fire, but will reduce considerably the danger of fatalities in many fires. It reads as follows:

"It is unlawful for any person to pile up merchandise, goods, produce, stock-in-trade, and other articles whatsoever in windows, doors, or such other places as the officers of the Montreal Fire Department may deem necessary for the circulation of the firemen in warehouses, industrial or commercial establishments."

Violations of the above provisions of this new law are made punishable by fine or imprisonment.