

Equipment and Engineering

Interesting Notes on the latest Municipal and Telephone Appliances.

The use of Garbage as Fuel for Municipal Power Plants

Through the medium of the Engineering and Daily papers, we are continually learning of the wonderful growth of the Cities and Towns in Canada. Particularly is this so in regard to the newer towns and cities in the Western Provinces.

As the municipality grows in population, the civic authorities are confronted with all the serious problems of sanitary protection, chief among which is the disposal of garbage, etc., from houses, factories, etc. The most common method is to cart the refuse to some municipally owned ground, where it is dumped and spread out, usually in such a manner as to cover the decayed matter with ashes, cinders, etc. This plan is feasible in the winter months when the percentage of ash is high, but in the summer months it is almost impossible to properly bury the decayed matter with the ashes available.

Although this method is widely used, it does not dispose of the nuisance. It simply changes its location, and as the town extends, new dumping grounds have to be found, with the expense of a larger haul in order to place the danger at a more or less safe distance. It is doubtful if there is any safe distance within cartage limits of a town, certainly not as regards the offensive and unhealthy odours which are carried by the wind long distances. Flies from such a place cannot fail to carry disease into any residences they may enter.

The other systems commonly in use are the Reduction and Incineration methods. Of these the Reduction system comprises the passing of the garbage only through a digestive process and extracting its oils, greases, etc.

The high temperature Incineration method is the most successful yet adopted for cities and towns of any size for the reason that the garbage refuse, ashes, etc., is burned at a high temperature under forced draft without the use of fuel other than the refuse itself and the waste gases from the furnace are utilized to generate steam in a boiler, which is usually erected with the Incinerator plant. Also the resultant clinker is of value in that it can be used for road making and for concrete work.

From tests recently made on a Heenan and Froude Incinerator at Moose Jaw, Sask., an evaporation of 1,125 lb. water per pound of refuse burned was obtained by the incineration of a mixture, approximately as follows:

Garbage refuse, 50%
Mixed Ashes, 50%

from which was developed 157 H.P., roughly calculated, as no actual boiler capacity test was made. A copy of the test on the incinerator at Moose Jaw follows.

With the same percentage mixture at the Heenan Plant at Westmount City, Que., an evaporation of 125 lbs. was obtained and converted into 138 K. W. electrical energy, practically 195 Boiler horse power in steam per hour for 24 hours.

The equivalent cost of coal fuel to generate the same

power would be approximately \$28 per day, \$10,220 per year, taking a 24 hour day and coal at \$4 per ton.

Both the Moose Jaw and Westmount plants are of 50 tons per day of 24 hours capacity.

The cities of Calgary, Saskatoon, London and Ottawa are installing plants of 75 tons per day capacity, and no doubt many more cities will do so when the authorities realize that in years past an incinerator plant was a sanitary precaution only, and though really a necessity, yet was not a source of profit to the city or town. Now with a high temperature incinerator equivalent to that of the Heenan type, the refuse can be profitably burned, in that steam is generated from the waste gases and can be used for a number of purposes. For example, take a 75 ton incinerator plant equipped with a 200 H.P. Boiler; steam can be generated to operate a high class engine of 260 H.P., which could be used to drive a 175 K.W. generator, or direct connected to operate a 6,000,000 gal. turbine at 60 lb. pressure. From either service the city and town would derive a revenue of approximately \$200 per day, which would be of some interest to any town of size. Further the up-keep of such a plant would not exceed that of a municipal lighting station of this capacity with coal as fuel, although the first cost would be considerably higher.

Engine-drive sewage pumps are frequently operated by means of the steam generated from the waste gases from the incinerator furnaces.

An idea of what other cities are doing to attract manufacturers can be gathered from the concessions made by Moose Jaw to induce the Saskatchewan Flour Mills Company to re-build their mills which were recently destroyed by fire at that point. The city agrees to completely close Manitoba Street (which parallels the taxation, as far as allowable under the Act, for a period of twenty years; purchase at par the company's first mortgage six per cent bonds at a face value of \$140,000; furnish adequate fire protection with a pressure sufficient to throw five streams of water through 1¼ inch nozzles to the top of any building not exceeding 110 feet and instal a high pressure system not later than November, 1912.—Daily News, Medicine Hat, Alta.

STREET SIGNS AND NUMBERS

We have lately paid a visit of inspection to the plant of the Thos. Davidson Mfg. Co., Montreal, where they employ about 1400 employees in the manufacture of enamelware, etc., and we were greatly taken with the process of manufacturing enamel street names and house numbers, which has grown to be a very large department of their business. While there we were shown orders from some of the principal Cities in Canada, and they inform us the City of Montreal has been using their enamel street names and numbers for the past five years with great satisfaction. The City of Toronto have lately contracted for a large supply of numbers and many other cities and towns throughout the East and West are appreciating the fact that an enamel sign and number is really the only permanent and best manner of naming their streets and numbering their houses as they last for so many years. Mr. J. N. Warminton, 207 St. James St., Montreal, their selling agent for Canada for this department is well and favorably known throughout Canada and any enquiries addressed to him for samples or prices will receive prompt and careful attention.