

Motive power throughout is electric. Steam for dry kilns, cleaning house and heating is furnished by 500 h.p., W.T. boilers. The buildings throughout are served by a Sturtevant heating and ventilating system. Lavatories and toilet rooms equipped with all modern conveniences are provided for the use of the employees.

**Self-Dependence.**—In this latest development of its varied activities there is a striking illustration of the ability of the Steel Corporation to carry on its business independently of aid or opposition. It wins the ore, coal and flux from its own mines and quarries, smelts the ore in its own furnaces, carries the resulting pig iron in its own works through the various processes that are necessary to convert it into the finished article that is required by the consumer, puts it in a package made in its own shops from lumber cut in its own mill from timber taken from its own lands, and delivers it to the user in the heart of the Dominion by means of its own ships.

What this really means is, that practically every cent of the value of a cargo of rails, or nails, or wire laid down at Port Arthur or Winnipeg, manufactured and transported under conditions such as are described above has been paid to our own people—and that not one cent has gone abroad.

The same statement could not be made if the pig iron were imported and made into steel, if steel billets were imported and made into rails or rods, or if rods were imported and made into wire and nails. The fewer the operations done at home the smaller the earnings of the home people; and the more complete the chain from the earth to the article ready for use, the more independent the nation and the greater its earnings and wealth.

The ground plan shown herewith needs no particular explanation beyond what has already been given.

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## ELECTRIC RESISTANCE OF MAGNETIZED GRAPHITE.

Magnetization affects the electric resistance of elements in different ways, generally increasing it, but decreasing it in the case of ferro-magnetic metals. This influence is several hundred times stronger in cadmium than in tantalum and bismuth. When investigating the magnetic properties of the elements, Morris Owen, Amsterdam, found that graphite possessed exceptionally high magnetic susceptibility. It, therefore, occurred to D. E. Roberts that the electric resistance of graphite would also be very greatly altered by magnetization, and his experiments entirely confirm this assumption. They also showed, however, that different specimens of graphite behave very differently, just as Owen had found that the magnetic properties of the elements were very much affected by their purity. Roberts experimented first with ordinary lead pencils, and afterwards with prismatic bars of various graphites, the specimens being about 10 mm. long, 1 mm. or 2 mm. in width, up to 0.5 mm. in thickness, at temperatures ranging from  $-200$  deg. Cent. to  $+200$  deg. Cent. Some of his graphites conducted nearly half as well as mercury under ordinary conditions. When the graphite was magnetized, the direction of the lines of force being at right angles to the plane of cleavage, the electric resistance for continuous currents increased by several hundred per cent. in many cases, but the values fluctuated very much. As the temperature rose, the increase in resistance was generally less marked, but on the other hand it was sometimes also more clearly defined.

## COAST TO COAST.

**Vancouver, B.C.**—The city has under consideration the expansion of the water system by the purchase of the watershed of Seymour Creek and the construction of a large reservoir or storage basin therein, a project which will involve much engineering.

**St. Boniface, Man.**—About two weeks ago the formal opening took place of the new stock yards at St. Boniface, Man. The function brought together a representative gathering of public men, and after Premier Roblin had declared the yards open, the party inspected the yards, which possess considerable interest for the engineer and the contractor. The contract for the laying of the sewers, water mains, together with all the concrete work, constitutes a problem that is quite interesting in itself when it is remembered that the pavements alone cover an area of 65,000 square yards. The paving consists of a concrete base  $5\frac{1}{2}$  inches thick, the mixture being 1:3:5. On top of this there is a one-inch thickness of finish, one part cement to  $1\frac{1}{2}$  parts coarse sand. The base and topping took 12,000 cubic yards of mixture. The runways for the cattle from the landing platforms to the level of the pens are all built of concrete. Altogether, it is an interesting piece of concrete construction. The contract for laying the sewers, water mains, laterals and concrete paving was carried out by the Hurst Engineering and Construction Company, of Winnipeg.

**Brantford, Ont.**—Ratepayers living on Brant Avenue became incensed over the deplorable condition of the street pavement, and have stated their intentions to the city council of refusal to pay charges upon the work when the tax bills are due in October. They state that they are prepared to go to the courts if necessary in defiance of any attempt on the part of the city to exact payment. Meanwhile, the paving company has received several ultimatums to repair the street, but nothing has been done, although the nuisance has prevailed for several months. Latest report has it that the city council has instructed that proceedings be commenced against the Westrumite Company to enforce the company's contract with the city for keeping the Brant Avenue in good repair.

**Toronto, Ont.**—The new Ontario Highway Commission has constructed a programme for the balance of the year that involves the collection of an immense quantity of statistics covering provincial road conditions, expenditure, and traffic, for each municipality. This will include data gathered from the United States, and concerning the experimental road work which many of them are doing. From the course adopted it is evident that the new system will primarily serve the interests of the farmer, and will endeavor to achieve a proper proportioning in the interests of the agriculturist and the automobilist. Laws and regulations, economic features, finance, construction and maintenance, and educational facilities is a summary of the work which the commission has undertaken for the next few months.

**Calgary, Alta.**—Analyses of the sample of Calgary drinking water sent to Edmonton recently by Dr. Stanley Mahood, medical health officer, show that the water from the Bow River, now being pumped into the city mains, is free from colon bacilli, which is a practical indication that there are no typhoid germs present. Dr. Mahood expressed himself as pleased with the result of the analyses, but pointed out that the city will soon be in a position to protect itself absolutely against possible contamination through daily analyses of the drinking water. "The new municipal laboratory, with City Chemist Field in charge, will be ready to make analyses of our water, beginning next week," said Dr. Mahood, "and the tests of the water will be made daily. This will enable