

DISTRICT HEATING SYSTEM AT WHITBY, ONT.

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AS buildings have developed in size and complexity of construction there has grown up the demand for their artificial heating and ventilation, so that from the antiquated open fire-place and iron stove a science has matured which is now rich with inventive genius and detail of manufacturing skill.

An interesting example of "district heating" over an extended area, and of its importance in the general scheme of construction, is at present being installed as the permanent heating and ventilation system of the Hospital for the Insane, Whitby, Ont., an institution which the provincial secretary's department for Ontario has now under construction.

The circulation of the water will be forced by the operation of two centrifugal pumps driven by 125-h.p. turbines, using steam at 150 pounds pressure, the water being forced through the heaters and through a Venturi recording meter which will measure the exact amount of water pumped.

From this position it will enter the main lines to the buildings, flowing through the various mains and sub-mains and, being collected in the various returns and sub-returns will be delivered back again to the power house and again recirculated.

For the purposes of ventilation there is being placed in each building a supply and an exhaust fan which, besides serving as a medium of ventilation, will form, when in operation, an auxiliary to the heating system during seasons when the temperature is extremely low. The supply fan will draw air from the outside which in passing

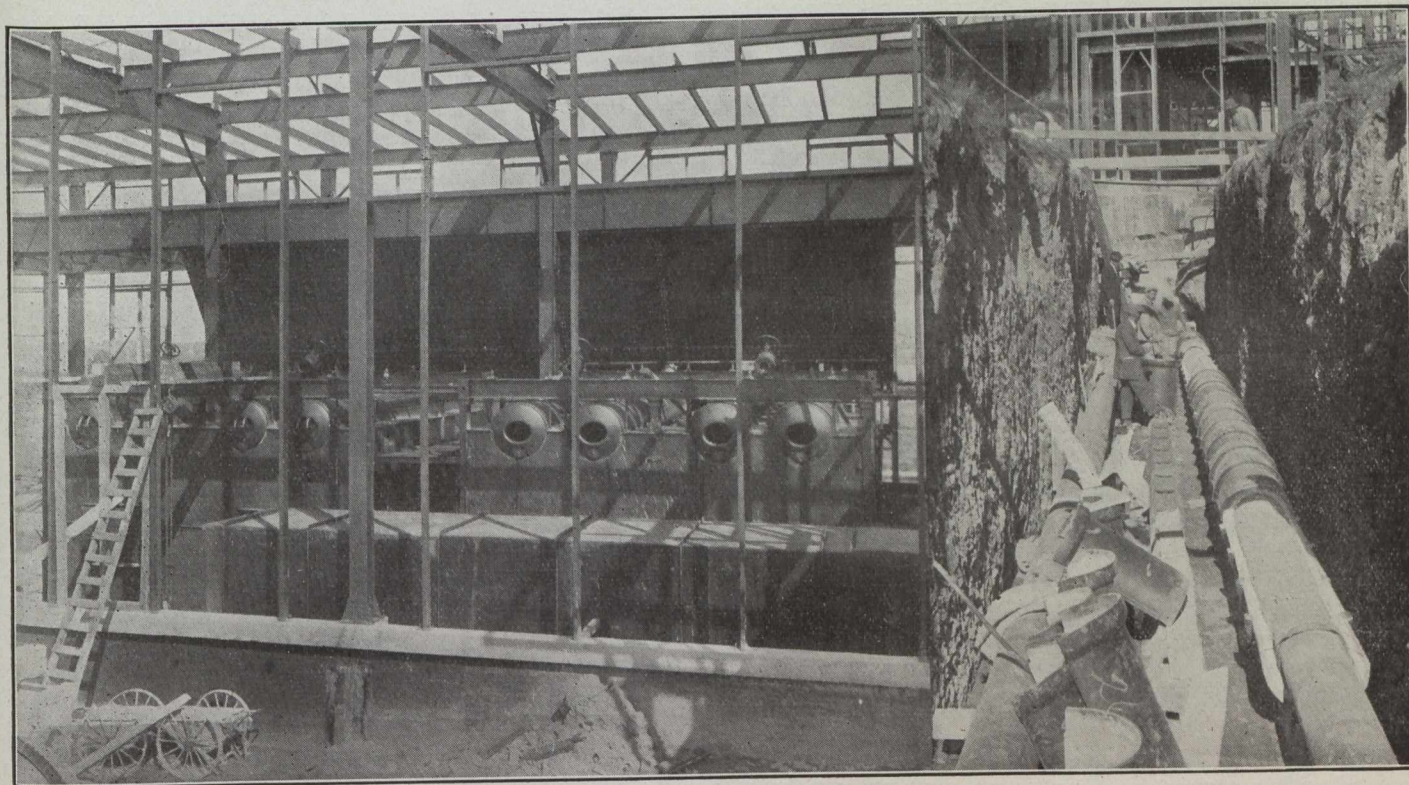


Fig. 1.—(Left) Boiler Installation for the Power House of the District Heating Plant, Hospital for the Insane, Whitby, Ont. (Right) Heating Mains and Returns in One of the Lines During Construction.

This institution in its completed stage will occupy an area over half a mile square and will consist of a combination of seventy or more buildings, comprising patients' cottages, doctors' and nurses' residences, attendants' homes, dining halls, hospitals, convalescent and industrial centres, chapel and concert hall, recreation theatre, general stores, administration offices, infirmaries, power plant, bakery, laundry, workshops, cold storage, and other buildings. The heating and ventilation of the entire establishment will be executed and controlled from a central heating station, installed at the power plant, the primary system of heating employed being the forced circulation of hot water.

The heating of the water used in the system will be effected by two large heaters, one using exhaust steam and the other live steam at 150 pounds pressure. Steam will be generated at the power house by means of eight 325-h.p. water-tube boilers, equipped with Murphy stokers, economizers and induced draft fans.

over steam-heated coils will be raised in temperature to 75° F. before it is delivered to the rooms, from which it will be exhausted by the exhaust fan to the open air. At the power plant mechanical coal-handling equipment has been installed with a receiving track hopper beneath a spur line from the Grand Trunk Railway. Coal will be dumped from the cars to the receiving hopper and fed to a cross-conveyer which will deliver to a pivoted-bucket elevator-conveyer in the boiler-room and from there elevated and dumped into overhead suspension bunkers. The coal will be fed from the overhead bunkers to a travelling weighing scale which will in turn dump to the Murphy stokers.

Ashes will be delivered from the boilers to the bottom of the pivoted-bucket carrier which will elevate and convey to the ash bunker from which they will be discharged direct into a wagon or other means of conveyance to their final disposition.

The construction and installation of mains for the distribution of the hot water and steam to the different