Firm 'Warms the Heart of Seattle'

Steam heat for 397 downtown buildings courses through 12 miles of piping under city streets

By NANCY SCOTT FREEBURN

IN the past few months, while Seattleites were worrying about how to keep cool, one Seattle firm was preparing for the big job it takes on when summer is over — the responsibility of keeping thousands of Seattleites warm.

The Seattle Steam Corp. supplies heat for 397 buildings in downtown Seattle, and in part serves 45 others. By the time January rolls around, the mammoth boilers operating continuously at its main plant will be generating 5,000,000 pounds of steam a day. A "pound of steam" to a heating engineer is equivalent to a pound of water.

Office workers, cozy and warm as they look out on a wintry scene, probably give little thought to what keeps the office fires going. They might be surprised to know that they walk across the source of supply on their way to work: A network of insulated steel pipes, originating at the main plant on Western Avenue and threading its way for 12 miles beneath downtown streets and alleys.

The area served by Seattle Steam Corp. runs from Jackson Street on the south along the waterfront to Virginia Street. The eastern boundary, at Eighth Avenue, extends from Virginia Street to Madison Street, then west to Fifth Avenue and south to Jackson Street.

MANY of the buildings within this area have their own heating plants, but prefer to use the central system.

"Central heating makes for a cleaner city," said one building owner. "Imagine the smoke that would settle over Seattle if all the buildings had their own furnaces going!"

Two large users of the service — the L. C. Smith and Dexter Horton Buildings — have agreed to operate their own plants if an emergency should arise; but so far, it hasn't.

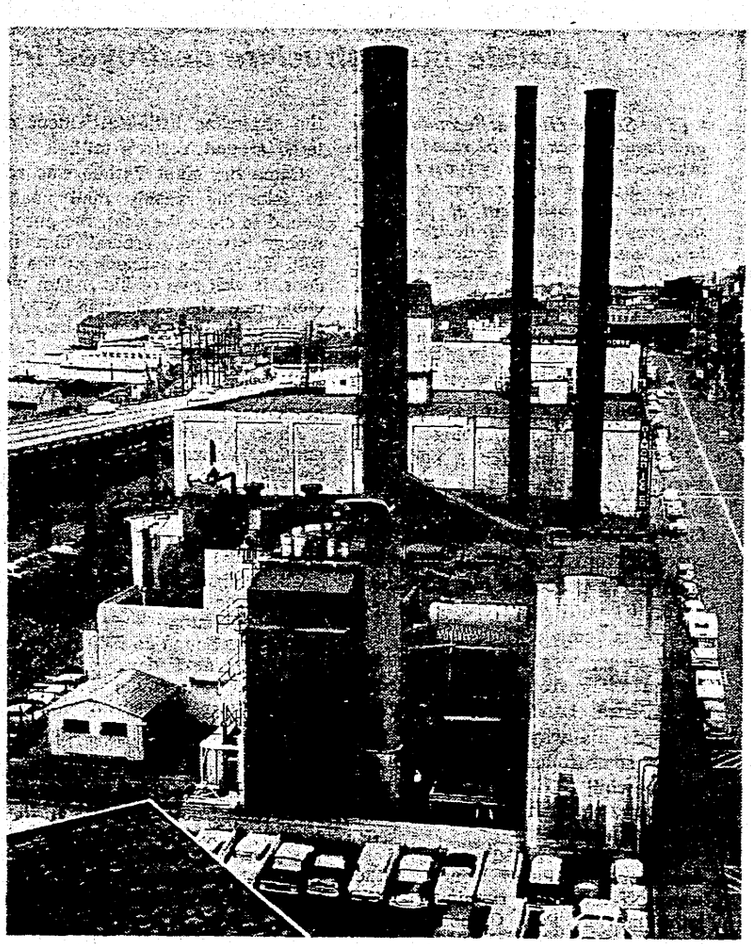
Among customers of the steam corporation are all downtown department stores, theaters, the Washington Athletic Club, the city's leading hotels and major office buildings, the familiar old-timers and proud new structures, such as the Norton Building, Washington Building and the public library.

For such a tremendous operation, one might expect to find a good-sized staff behind the scenes. Actually, the Seattle Steam Corp. has only 31 employes, including those in the office. Three shifts daily of two men each handle the boilers which generate steam at the Western Avenue plant.

However, providing steam to heat about 400 buildings is a little more complicated than putting some water on the stove in a whistling tea kettle. Although the recipe calls for only three ingredients — water, fire and air — it is the way they are put together that counts. (For example, with too little air, there is too much smoke.) Proportions must be accurate.

HERE is how the system works: City water is brought into the plant and goes into a tank, where it is treated to remove minerals which might damage the boiler. After these solids are removed, the water is pumped into a boiler, where it is heated and becomes steam at 356 degrees and at 130 pounds of pressure. It then goes through "reducing valves," where pressure drops to 8 to 12 pounds, and is distributed through pipes as steam.

In passing through the radiators in each building, the steam condenses and becomes water. The result: Hot-water heat, automatically turned on or shut off by thermostatic control.



TREMENDOUS BOILERS at the Western Avenue plant of the Seattle Steam Corp. provide heating for 397 buildings in the downtown area through 12 miles of pipe beneath the city streets.—Times photos by Roy Scully.

OPERATIONS PROBLEMS at the Seattle Steam Corp. plant were discussed by Frank Marshall, left, production and distribution superintendent, and Hartley Hitchcock, plant supervisor.

The largest boiler at the main plant is 43 feet long, 58 feet high and 22 feet wide. This unit, installed in 1955, is supplemented by seven smaller boilers. With the addition this fall of another giant generator, it is expected the two large boilers normally will be able to carry the full load. Both are pressurized and are outdoors with inclosed "firing aisles."

A second plant, at Post Street between Columbia Street and Cherry Street, has eight steam generators "standing by" — each capable of producing 25,000 pounds of steam an hour — for peak conditions or breakdown service.

Central heating of Seattle buildings goes back to 1890 when the Seattle Steam Heat & Power Co. began operations at the Post Street plant. Taken over by Puget Sound Power & Light Co. in 1912, the operation was sold to its present owners nine years ago. Many of these owners are also building owners who like the efficiency of a "pool" system.

JUST as home heating is more satisfactory today than at the turn of the century, central heating is a far cry from what it was 70 years ago. Capacity of early-day boilers was only a fraction of what it is with modern equipment.

The maximum capacity of 19 old boilers installed between 1890 and 1925 was 406,000 pounds of steam an hour. Hourly capacity of the two new boilers will total 530,000 pounds.

Automatic control of equipment has been another boon—fuel, air and water were hand-controlled originally.

"Conversion from coal to oil and gas was probably the most radical change of all," said Richard McKay, executive vice-president of the Seattle corporation. "When coal was used, it had to be brought in by truck, dried and crushed. Disposal of ashes was a major problem. There were no mechanical conveyors or blowers in the early days—ashes had to be handled by hand with rakes and shovels."

SURPRISINGLY, coal was used to stoke the fires until 1953, when the present corporation undertook a large-scale modernization of its plants. Today, the company uses about 60 per cent oil and 40 per cent natural gas, a combination which at present provides the most economical operation. But the boilers were designed to convert back to the use of coal if the situation should change.

In 1957, as an insurance against gas interruption or a shortage of oil, the company installed a 55,000-barrel storage tank at Winslow, Kitsap County. The reserve supply has been used only once—during the Suez Canal crisis. Provision also has been made for storage of water at the main plant, which could be used if water were shut off temporarily.

The annoyances an average citizen faces in keeping the home fires burning seem minor, compared to the task of keeping downtown Seattle comfortable on a winter day. But the Seattle Steam Corp. is ready for emergencies and, in keeping with its slogan, it "warms the heart of Seattle."