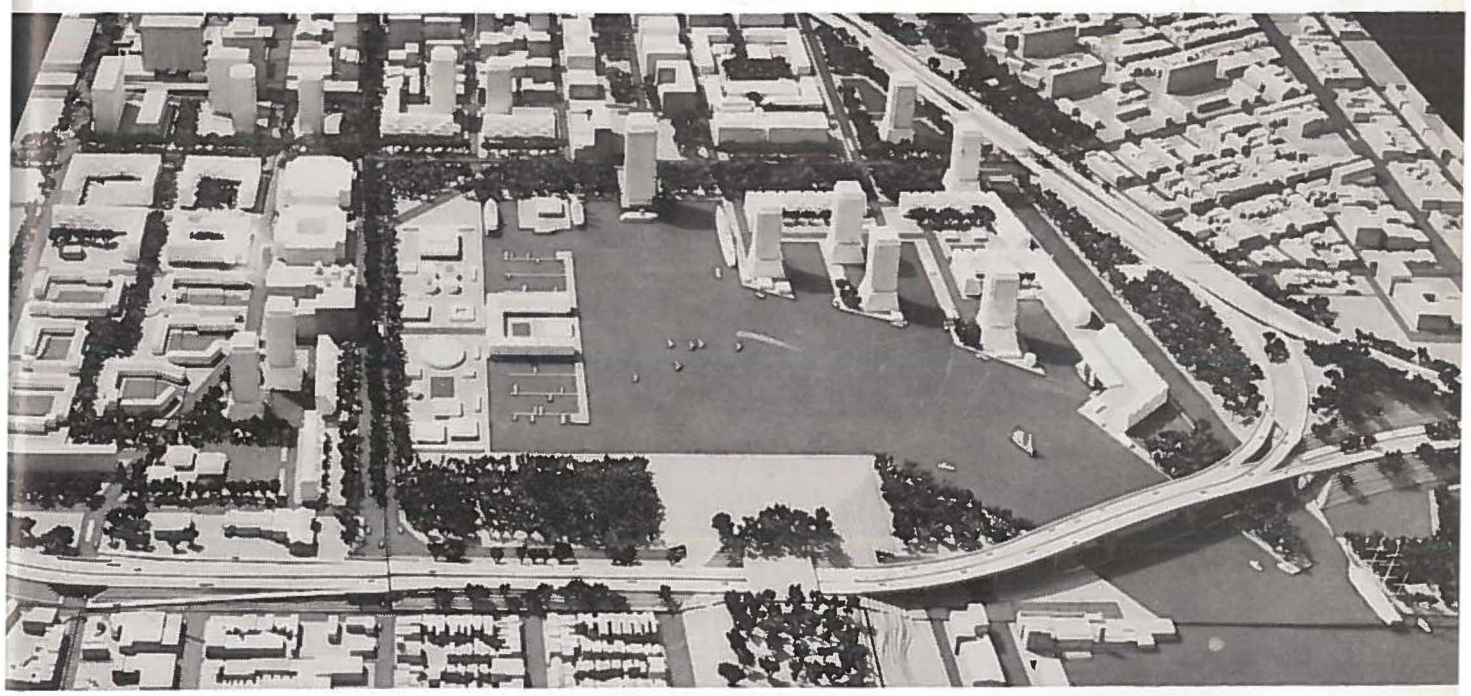
# DISTRICT HEATING

PUBLISHED QUARTERLY SINCE 1915 FALL 1969 — VOL. LV, No. 2



Baltimore's Inner Harbor — "Before" (top) and "After" (bottom) Redevelopment . . . page 12

AN OFFICIAL PUBLICATION OF THE INTERNATIONAL DISTRICT HEATING ASSOCIATION

The plant will be designed for two separate distribution system zones with provisions made for the addition of future zones as the need arises. A separate group of pumps will be available for each zone, thus making it possible to vary the temperature and flow rate in each zone without affecting the generator circulation.

The system circulation pumps will be equipped with variable speed drives to vary the capacity and head of the pumps so that substantial power savings can be realized during mild weather or other off-peak periods.

Steam pressurization is to be achieved through the use of two expansion drums which are separate from the high-temperature water generators and elevated above the generators.

All generators will discharge into the expansion drums where a small portion of the water flashes into steam to maintain a steam pressure cushion in the space above the liquid level in the drums. The operating level in the expansion drums has been established at a level above the highest point in the distribution system to prevent the flashing of water into steam in the supply system.

Each expansion drum is sized for slightly more than 50 per cent of the total system capacity. Two drums will provide greater flexibility and reliability in operation than a single drum. This system need never be shut down for routine inspection, maintenance or repairs on the expansion drums.

To further carry through the principle of flexibility in system operation, the piping in the central heating plant is divided into two major groupings of boilers and circulating pumps with cross connections, so that fully 50 per cent of the plant can be shut down without affecting the remaining half. The expansion drums, being a critical part of the system, will be equipped with safety devices for high and low-water levels, excess pressure and interlocks with boiler combustion safety and water flow controls. ●

## NEW ENGLAND SECTION OF IDHA

The Executive Board of the New England Section met on October 3rd, in Boston, Mass.

The next general meeting (a dinner meeting) for Section members and guests is scheduled for November 5th, in Dorchester, Mass. at Blinstrub's Old Colony House.

Mr. Robert Graham, Boston Edison Company, will be assisted by Messers. H. K. Archibald and W. G. Cleaves, Hayes Pump and Machinery Company, in presenting a program on: design and erection problems for constructing equipment to pump No. 6 fuel oil through six miles of underground pipe serving two electric power generating plants and two steam generating stations.

## ...HAVE YOU HEARD!

### LONDON, ENGLAND

The first international convention devoted entirely to district heating will take place at the Cafe Royal in London, from April 20 to 24, 1970. It will be opened by the Minister of Power.

Mr. Derek Ezra, deputy chairman of the National Coal Board, is president of the convention which is being organized jointly by the District Heating Association, the Institution of Heating and Ventilating Engineers, and the Heating, Ventilating and Air Conditioning Association. It has the support of national bodies including the Gas Council, the National Coal Board, and the Electricity Council, which are sponsoring it; as well as Shell-Mex and B. P., Esso petroleum, and G. N. Haden and Sons.

As the development of district heating will obviously have far reaching influence on a great many parts of industry, the convention is being desigend to encourage a free enchange of information, ideas, and experience on an international scale. The program will include discussions between heads of industry and official groups, as well as speakers who will present reviews of the progress already made in other countries, and its success in England.

Running concurrently with the convention, there will be an international exhibition at Olympia in London, from April 20 to 25. Its theme will be district heating associated with the general context of heating, ventilating and air conditioning.

Details concerning the convention and the exhibition may be obtained from the Secretary, International District Heating Convention 1970, Derbyshire House, St. Chad's Street, London, W.C.1, England.

### JAPAN

Long before the development of central heating and air conditioning, the Japanese had a method of combating uncomfortable temperatures.

Theirs was the psychological approach. In summer, they hung a picture of a winter scene — perhaps snow-capped Mount Fuji — in a place of honor in their homes. In winter, the picture was replaced by one of sunshine and greenery.

### SAN FRANCISCO, CALIFORNIA

The Semi-Annual Meeting of the American Society of of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) will be held at The San Francisco-Hilton Hotel from January 19-22, 1970.

### STATISTICAL STEW

*Ever Wonder what the most expensive trip in the world is? Probably the route travelled by a business letter from your secretary's dictation pad to the company mailroom. The Dartnell Corporation reports the present cost of a dictated business letter is $2.74 — double what it was in 1960.*

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*Nobody Really Knows how many magazines are published in the U. S., but an educated estimate is, about 16,000. Of these,10,000 are in some way related to the business world, and about 8,000 of these are company house publications.*

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*It Costs the average car owner about $1,053 a year to keep his car, even if he never takes it out of the garage. This includes depreciation for the first three years, insurance and registration fees for a medium-priced four-door sedan. If he drives it 10,000 miles per year, gas, oil and other operating costs raise the total to $1,448.*

# ...HAVE YOU HEARD!

**UNIVERSITY OF UTAH**
**SALT LAKE CITY, UTAH**

The new ultra modern heating system at the University of Utah is reported to be one of the most sophisticated in the U. S.

A unique central control panel automatically performs 12,000 separate checks on the system every ten minutes. A single operator can control almost 1,000 mechanical functions from the console; by simply pushing a button he can obtain instantly — temperature readings from 241 points on the campus, adjust 59 valve controls, or check nearly 300 warning alarms.

If a critical malfunction occurs anywhere on the system, a built-in "fail safe" device will automatically shut down the entire operation.

At full capacity, the plant can produce 330 million Btu's per hr — enough to heat 5,000 average-size residences.

Thirty-four buildings on the 637-acre campus are served by the underground distribution system which carries water superheated to 445 deg. A constant pressure of 390 psi prevents the water from flashing to steam, and automatic regulating devices keep water volume within one per cent of the 200,000-gal system capacity. A completely automatic fueling-firing process feeds four giant furnaces with either coal or natural gas and can switch from one to the other within 30 minutes.

One important feature of the system is the intricate smog control device which has accomplished almost total elimination of pollution problems.

The University's installation has created wide interest in the heating field and has been inspected by many engineers and technicians from not only the U. S. but also canada.

International Boiler Works, one of the largest companies in the industry, points to Utah as "the best place to go to see a high-temperature water system in operation." Honeywell, Inc., manufacturer of heat control mechanisms, has adopted the project as an unofficial model from which to pattern similar systems throughout the world.

**UNIVERSITY OF LOUISVILLE**
**LOUISVILLE, KENTUCKY**

The new chilled water system being installed to serve the University of Louisville Medical Center will be larger than the one which serves Houston's Astrodome. The $5 million project, expected to be in operation by the first part of 1970, will provide air conditioning for the still uncompleted U of L's. medical and dental schools; the planned Norton Children's Hospital; Jewish Hospital; the Rehabilitation Center; General Hospital; Methodist Evangelical Hospital; and one non-medical facility, Jefferson Community College.

The new system will provide 9,000 tons of air conditioning per hr to the presently planned buildings, but will be capable of producing twice that amount, if needed.

Two new 75,000 lb per hr boilers will be added to the present steam heating plant to augment the output of the three existing 41,000 lb per hr boilers, so that both steam heat and chilled water air conditioning can be supplied.

**UNION OF SOVIET SOCIALIST REPUBLICS**

Ten villages in southern Kazakhstan in the eastern Kyzyl-Kum (Red Sands) Desert are now heated from a sea of hot water which lies beneath the area. The 80 C water has been tapped and piped into homes and farm buildings.

In the Tienshan Mountains, near Alma-Ata, a 3,000-ft deep bore is producing almost a half million gallons of hot water per day — this is being used to heat a complex of greenhouses.

It is estimated that the subterranean waters of Kazakhstan alone are a potential source of heat equal to 160 million tons of coal.

**UNITED KINGDOM**

**England**

Discarded rubber tires, a growing disposal problem, can be used as a cheap fuel for district heating, according to Lucas Furnace Developments of Wednesbury (Staffs) a Unochrome subsidiary.

The Company has developed a furnace capable of burning a wide variety of waste products including old tires, though its main purpose is to burn processed sewage, and industrial and household waste. It operates at about 1,000 C compared with a more conventional 500-700 C temperature.

Among the furnace's features are (1) it has no moving parts and (2) silicon nitrate is used (instead of metal which is subject to fatigue at high temperatures) to minimize maintenance costs.

A five-cwt-per-hr capacity plant for converting processed sewage to a sterile, inorganic residue is being taken to Munich, where it will be the principal British exhibit at the International Sewage Engineering Exhibition. Subsequently, it will be transferred to Huddersfield as a demonstration unit. A seven-ton-per-hr plant is being built for Leeds, and plans are being made for plants up to 30 tons per hr, each capable of servicing towns with populations of 300,000-400,000.

**England**

The Nottingham City Council is planning to build Britain's first refuse incineration district heating plant.

Incineration is an efficient way to dispose of household refuse, especially plastic wrappings and containers which do not decompose or dissolve, but burn ferociously.

**South Wales**

A new type of reinforced plastic pipe for district heating has been developed by B. P. Plastics and Redland Pipes Limited. A sample installation has been made at a new housing development near Bridgend.

The pipe consists of two concentric layers of glass-fiber-reinforced Cellobound polyester resin separated by a layer of insulating material. Advantages claimed for the system are (1) freedom from corrosion and (2) lower capital cost than steel pipe systems due to the elimination of protective systems and complex fittings.

The lightweight plastic pipe lengths are easily handled and laid, as they are simply bedded in sand. Connections are made by a simple push joint which is sealed by a quick cold-curing epoxy resin injected under pressure by a hand gun.

For the trial installation at Bridgend, ten-ft lengths were used, but much greater lengths are expected to become available. A total of 160 ft is being evaluated alongside of standard steel piping. ●