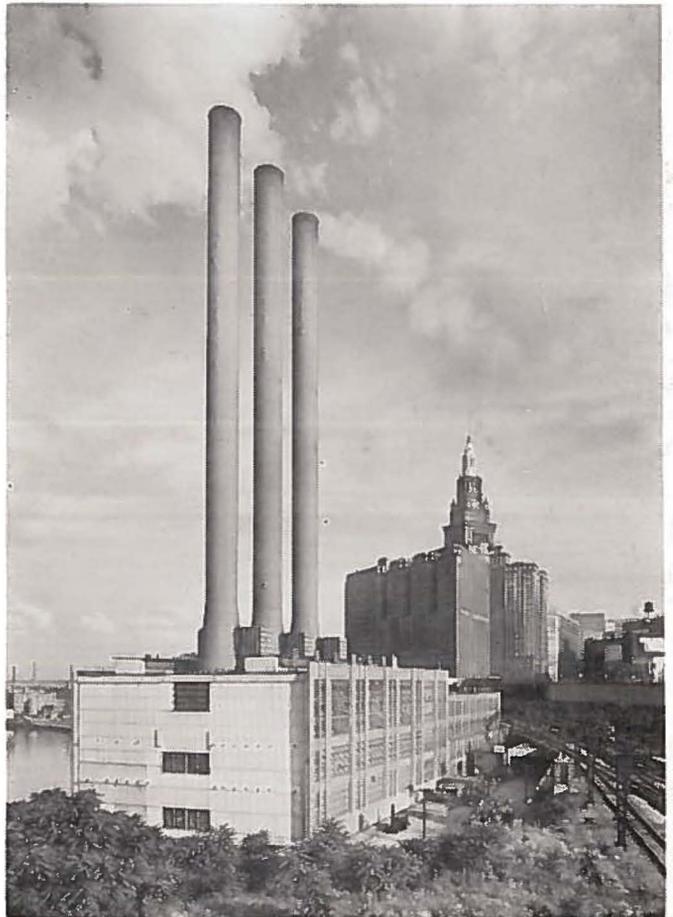


AN OFFICIAL PUBLICATION OF THE INTERNATIONAL DISTRICT HEATING ASSOCIATION

DISTRICT HEATING



A NEW PLANT ON TOP OF THE OLD

The Illuminating Company's Canal Road Plant today . . . one of the two steam plants which provide a nominal capacity of 1,500,000 lb per hr for today's Cleveland . . . Page 13.

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DISTRICT HEATING — COOLING

. . . INTERNATIONAL

GERMANY

A district cooling plant is being installed in the business district of North Hamburg, to supply air conditioning to office buildings.

It is being built by the North Business District Remote Refrigeration Company. At the present time, the managing company and subsequent operator of the plant is the Hamburg Electricity Works Joint Stock Company. All present potential consumers are part of the Company, which is being run on a cooperative basis.

The chilled water will be produced by two-stage electrically-driven turbo-compressors. The initial refrigeration capacity (12 Gcal/h) will be supplied by three machines of equal capacity. Eventually, eight machines will be used, with a capacity of up to 32 Gcal/h. Provision has been made for expansion in all other phases of the system (cooling towers, distribution lines, etc.).

The treated cold water (6/15 and 8/15 C) will be available the year round and it will be distributed in underground plastic-coated pipes. The consumer sub-station will contain instruments for stabilizing pressure differential controlling output and metering refrigeration capacity.

In planning the installation, particular attention was paid to the economic operation of partial and full-plant load. The plant will be automatically operated.

DENMARK

The growth rate of district heating in Denmark is unusual, when the following facts are taken into consideration: the country's population is only 4.6 million and of these, 3.4 million live in urban areas. Other than Copenhagen and a few other large towns, typical communities are small so there are six large combined heat and power district heating installations and about 420 installations served by thermal stations. The six-thermal-electric plants are in Copenhagen, Aarhus, Odense, Aalborg, Esbjerg and Randers and they produce four million Gcal each year (16 x 10¹² Btu). Copenhagen accounts for 40 per cent of this load, Aarhus 18 per cent and Odense 15 per cent. The others are fairly equal in size. The 420 thermal stations also produce four million Gcal per year.

Group heating systems in Denmark are not common. In fact, the Danish word for district heating, "fjernvarme," means distance heating.

District heating is so popular that instead of just downtown areas being serviced by the central plant, whole villages and towns are included. Process loads are rare, but among customers served are residences, hotels, offices, shops, factories, hospitals, schools, churches, and shopping centers. Roads are also heated.

The Danish Government encourages district heating for economical reasons. The Ministry of the Interior ensures technical and financial success by insisting on sound economics and a high standard of design and workmanship for which it employs only highly qualified, experienced specialists in district heating to plan the systems. Danish district heating has apparently suffered no serious setbacks or general failure of heat distribution mains, due in part to the Government's responsible role. The Government acts as guarantor for loans and so gives authoritative backing to district heating. In some cases it is the local authorities, under the Ministry of the Interior, which sponsor, finance, and operate the district heating systems.

As the city expands or new communities spring up on its borders, the municipality continues to extend the system or provide additional ones. The town's chief engineer is responsible for design, execution, operation, maintenance and collection of charges.

Heat produced from incinerator plants is becoming more popular. One of the most important of these is at Frederikshavn. Instead of the refuse being carried by a conveyor belt, the grab method is used. The building is divided into two sections. Section 1 is the incinerator furnace, the economizer and the supplementary boilers. Refuse is collected five days a week from the town of Saeby 5km away and tipped into a pit.

Only one operator is in attendance, whereas other systems which are not so successful have as many as seven. He sits in a clean, odorless room at a control desk in front of a closed-circuit TV screen. He simply operates an almost automatic self-locating crane remotely by a small lever. A polygrab lifts the refuse into the furnace and the operator selects either paper, wooden boxes, etc., or less combustible refuse. In this way the furnace is kept at 1600-1800 F which is the optimum temperature and fly ash can be kept to a minimum.

Ash and clinkers from the furnace are disposed of in a silo. Air for furnace combustion (875,000 ft³/h) and boiler plant is drawn from Section 1, creating a sub-atmospheric pressure so that no dust or odor results.

Only one furnace is installed so far and it burns three tons of refuse per hour on a single shift. An increased supply of refuse would permit two-shift working with the same plant and so be more profitable.

The destructor furnace is steel, refractory lined and the grates are hydraulically operated to move the material and break it down. The clinker produced is cooled and removed in sealed ducts. The flue gases pass through the economizer and are cooled to 350 F before being cleaned in a grit arrester, centrifugal, to remove ash and soot before the clean gas passes into the 170 ft chimney. There is one maintenance man for the district heating and incineration plant.

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The heat from the incinerator is sufficient to supply the large district heating system at Frederikshavn from May until October, and in the winter months a 25 million Btu/h boiler plant is also put into operation as required. Heat is produced from incinerator plants for the following towns also: Rudkoping, Fredericia, Aalborg.

It has been reported that there are over 5 million district installations in Denmark.

UNITED KINGDOM

North Buckinghamshire, England

A new city for 250,000 people may have all its heating piped from one central plant. The plan is being considered for the city of Milton Keynes, to be built in North Buckinghamshire. Already under construction is a gas-fired boiler unit to supply three schools and other buildings in a London complex at Bletchley, which will be incorporated into the new city.

It has been estimated that Britain has a tremendous source of natural gas beneath the North Sea, and it might be put to use through the medium of large heating plants constructed throughout the country.

Newcastle, England

The city of Newcastle's first district heating system will begin operation in a few months. It will supply heat and hot water to apartment buildings, a clinic, library, bank, commercial shops and various recreation facilities.

Yorkshire, England

A new district heating system which is initially supplying service to five factories, was recently put on stream.

Yorkshire is now considering construction of additional district heating installations to supply areas due for urban renewal. These may be based on the incinerator process because space needed for the disposal of refuse is becoming scarce.

Kirkhill, Penicuik, Scotland

Plans have been finalized for Scotland's first major modern district heating system, which will supply heat and hot water to 402 residences at Kirkhill. The system will have the capacity to serve additional housing facilities and a contemplated nearby industrial park.

National Coal Board

The National Coal Board, now part of the recently-formed company, Associated Heat Services Limited, has plans to expand its industrial, commercial and domestic markets. The new company will sell heat and service, rather than coal, at a cost per therm. About a dozen systems are either being built or planned.

Seven years ago, the Coal board instituted district heating in the North East with the installation of a central boiler plant for Billingham Urban Council to provide all the heating requirements of the new town and the adjacent industrial area. Four systems now in the region will be operated by the new company. They burn approximately 20,000 tons of coal per year, smokelessly, in compliance with the Clean Air Act. The primary aim of the company is to establish a long-term outlet for coal, and it is hoped that in five years the new company will be using 250,000 tons of coal on long-term contracts.

The firm, Associated Heat Services (North-East) Ltd., is a subsidiary of Associated Heat Services Ltd., of London, which is a joint venture by the National Coal Board, Solar Industries of Glasgow and a French company.

The National Coal Board has a third share in the company, but this will not restrict the fuel for the systems to coal. Associated Services will power the systems by oil, gas, or refuse if required, but their main emphasis is on coal. Although systems are operating at Billingham, Gilley Law in Sunderland, Washington New Town, and the Jeremiah Ambler Factory at Peterlee, the North-East's largest district heating system is located at Thornaby-on-Tees which is a large industrial complex.

The 300-acre Teesside Industrial Complex at Thornaby supplies high-pressure hot water at 300 F which is carried in closed circuit underground mains to the factories. Heat is metered at entry into each factory, and the factory owner is responsible for the subsequent distribution and utilization of the heat within the factory. ●



In
the
News...

Victor J. Bliemeister, General Superintendent of Meters for The Detroit Edison Company, has celebrated his 45th service anniversary with the Company.

James A. Thompsen has been appointed Manager of the Insulation Sales Department at American Gilsonite Company, and is located at the general and international sales offices in the Pan Am Building, New York City.

Louis J. Spisak, Chief Engineer, Distribution Department at Allegheny County Steam Heating Company in Pittsburgh, Pa., recently marked his 35th year with the Company.

L. W. Palmer has been appointed General Manager of the ADSCO Division, Yuba Industries, Inc., in Buffalo, New York.

Charles J. Allen, a vice-president and director of the firm, is now Director of Mechanical Engineering and Electronic Data Processing at Albert Kahn Associated Architects & Engineers, Inc. in Detroit, Mich. Other new appointments at the Company are:

Joachim Nachbar, Chief Mechanical Engineer and **Donald C. Hardie**, Assistant Chief of the Mechanical Department.

John E. Chumbley, vice-president, has been elected President of Tube Turns, a division of Chemetron Corporation, Louisville, Ky.

Kenneth W. Woolsey, Coaling Station Foreman for The Detroit Edison Company, recently marked his 30th service anniversary with the Company.

William L. Radar, Supervisor, Steam Distribution for The Dayton Power & Light Company, has been honored by his Company for completing 40 years of service.

Leon D. White, Jr., Superintendent, Electric Generation and Steam Division, now has the position of Division Superintendent of Electric System Planning and Operation at Rochester Gas and Electric Corporation in Rochester, N. Y. This new position also covers supervision of the Company's new nuclear plant known as the Robert E. Ginna Station. ●