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Published by the
AMERICAN DISTRICT STEAM COMPANY
NORTH TONAWANDA, N.Y.
Preferred for All Important Steam Line Construction

Originally developed for the most exacting of all steam line work, namely underground steam mains, ADSCO Expansion Joints are preferred wherever long life and trouble-free service is desired.

There's an ADSCO Expansion Joint for every operating condition of temperature and pressure — for steam, water, oil and other liquids and gases.

Dotted lines show some of the combinations in which ADSCO Joints can be obtained — service outlets — drip connections — anchor base — single and double slip. Save time and money by selecting the ADSCO Expansion Joint designed especially for your requirements.

BECAUSE of their familiarity with the advantages of cooperative effort, apartment house owners themselves afford a ready market for district heating plants. It should not be difficult for a responsible engineering group to interest the owners of apartments in densely built up apartment house areas to heat their buildings from a central plant. The factor of maximum load with minimum carry, which provides the ideal condition for highly profitable District Heating operations, is also prevalent in well built up apartment house sections, which are usually located some distance from the business district.

The advantages of heating a large number of apartment buildings from one central source are so great, that it should only be a matter of a few years before every large city in America will have district heating plants, serving apartment house sections.

Leaders among apartment house owners, who desire to cut their own costs, will be well repaid for the time and trouble it takes to organize the owners of neighboring buildings for the purpose of installing cooperative heating.
The simple turn of a valve eliminates all the disadvantages of the individual heating system.

The advantages to all who participate are so obvious that but little resistance should be encountered. Besides a decided saving in coal, labor and the investment and carrying charges of boilers, boiler flues, coal bunkers, boiler room equipment, etc., the elimination of which makes available a large amount of valuable space for storage or other purposes, district heating has many other features that appeal strongly to the Tenants are not annoyed by smoke and fine dust, sitting into their apartments, and are not distracted by noise from the handling of ashes, delivery of coal, firing of boilers, etc.

When steam is used for the operation of engines, pumps and other similar equipment, an even pressure can be maintained at all times as required for different equipment and apparatus—a condition which is sometimes not practical with individual operation, due to the varying load which results in fluctuation in boiler pressure.

Many of the advantages of district heating for apartment house sections apply with equal force to residences, and as a result, an increasing number of fine residential districts are being heated each year from central plants.

In some instances, the heating plant is installed on the cooperative plan, with practically all of the residents combining to organize a district heating company, while in other cases, a private company is organized to serve heat to a residential section.

In practically every large city in America—and in many smaller places—there is a real opportunity for live heating and ventilating engineers to develop district heating in exclusive residential sections. There are thousands of residential communities in the United States, where the home owners are people of means, who are willing to pay for the added convenience and cleanliness of district heating. These are the people who heat their homes with gas or oil in a search for greater heating service. The space saved by the elimination of boilers, coal bins, etc., can readily be used for a play room for the children—swimming pool—a private grill or a billiard room.

That thousands of families are waiting for someone to offer them district heating is indicated by the enormous prices that many families who desire to rid themselves of the dirt and bother of burning coal, are paying to burn gas or oil.

Besides well built-up residential sections, district heating has been the means of rapidly developing some of America's finest suburbs. Real estate operators, who have built homes on tracts of land, and installed a district heating system, have been able to sell the homes as fast as completed. In Philadelphia and other cities, a great many sub-divisions have made greater progress in a few months than they would have made in years without the inducement of homes heated from a central plant. The developers have profited, because with the many new homes sold and occupied, the value of the surrounding land increased. They were able to obtain premium prices for the remaining lots, because purchasers could build a home and heat it from the central plant for but little, if any, more than they would pay for coal.

Yeadon, Philadelphia advertised that their central plant heat "Costs no more than coal." Overbrook, Philadelphia, advertised $116.00 a year per home as the average cost of the heat. Laburnum Court, Richmond, Va. capitalized district heating by advertising, "The convenience of an apartment with the desirability of the suburbs" and an average cost for heat that was considerably under $100 for a five month period.

District Heating Growing in Iowa

The Southern Utilities Company, which furnishes gas, steam heat and transportation service in Southern Iowa has extended its service from eight communities in 1916 to 120 in 1925, as shown in the following table. District Heating is available in several of these communities.

Growth of Iowa Southern Utilities Company

<table>
<thead>
<tr>
<th>Communities served</th>
<th>No. of Consumers served</th>
<th>Annual Gross earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1916</td>
<td></td>
<td>$232,007.84</td>
</tr>
<tr>
<td>1917</td>
<td></td>
<td>$328,387.23</td>
</tr>
<tr>
<td>1918</td>
<td></td>
<td>$403,105.40</td>
</tr>
<tr>
<td>1919</td>
<td></td>
<td>$468,174.93</td>
</tr>
<tr>
<td>1920</td>
<td></td>
<td>$591,681.07</td>
</tr>
<tr>
<td>1921</td>
<td></td>
<td>$781,081.63</td>
</tr>
<tr>
<td>1922</td>
<td></td>
<td>$1,009,486.39</td>
</tr>
<tr>
<td>1923</td>
<td></td>
<td>$1,216,794.50</td>
</tr>
<tr>
<td>1924</td>
<td></td>
<td>$1,335,894.50</td>
</tr>
<tr>
<td>1925</td>
<td></td>
<td>$1,766,894.50</td>
</tr>
<tr>
<td>1926</td>
<td></td>
<td>$2,107,751.51</td>
</tr>
</tbody>
</table>

When the growth from 201 to 588 steam heat customers is considered in this light, the showing for steam heating takes on new significance.

In other words, an average of 75 new customers has been gained in each community where District Heating is available.

The sound expansion shown in the records of the Southern Utilities Company merely parallels the experience of other municipally or privately owned District Heating utilities.

And isn't it reasonable to expect that any project, which meets a public need better than it has been met before, is destined to succeed?
Golden Months of Opportunity

District Heating Companies Busy Enlarging and Improving Systems — Many Interesting Projects Under Consideration

Carpenters busy erecting houses — painters transforming drab buildings to new and pleasing colors — men busy digging trenches in streets and laying conduit, which next winter will carry comfort, health and cleanliness to thousands of new customers for District Heating service. Truly, summer is here — and with it the opportunity it brings to District Heating companies for enlarging and improving their systems.

In practically every up-to-date District Heating plant (whether or not extensions are required this year) the engineers are taking advantage of the opportunity which the warm months afford, to give their entire systems a general overhauling, so that they can continue to supply steam with greatest economy and profit.

The steady growth of District Heating has continually increased the demand for ADSCO Variators, Expansion Joints, Conduit and Casing, Steam Traps, Reducing Valves, Meters, Gate Valves, Fittings and other devices for the underground distribution and economical use of steam.

Many of the largest District Heating plants in America make it a practice each year to send specifications for all of their requirements to ADSCO — and this year has been no exception. ADSCO engineers are busy figuring on the requirements for the major part of the underground construction work which will be installed this season.

However, as a word of warning to its many friends, ADSCO suggests anticipating your requirements well in advance, and sending in your specifications before the season is too far under way. Each year, some companies put off making improvements until the last minute only to be obliged to go through the heating season under a severe handicap.

As we go to press, we are informed that contracts have been received for the construction of underground District Heating Systems in three cities in the Middle West, two in the East and several west of the Mississippi. Installation work is now in progress in several cities by ADSCO'S subsidiary, the North Eastern Piping and Construction Corporation.

While improvements and extensions to existing plants will contribute a valuable chapter to District Heating this year, new projects in the course of construction or under consideration are the lime-light of District Heating activity.

One of the outstanding features is the diversification of interest, which indicates the degree to which the District Heating idea is en trencbing itself in public appreciation. The public is becoming "heat minded."

As we have pointed out from time to time, there is no improvement which appeals so much to the prospective home owner as heat, supplied to the home the same as gas, water and electricity, without the annoyance of shoveling coal, regulating dampers, removing ashes and the uncertainty of a uniform heat supply.

Real estate men have discovered that District Heating will do more to sell homes than any other inducement they may offer. Experience has proved that property where District Heating is available is built up much faster and consequently shows a quicker increase in value.

That is undoubtedly the reason why a large real estate development corporation is now investigating the cost and feasibility of installing and operating through a subsidiary a District Heating plant to serve 3,000 homes in a new development of a large city. The new installation will be the largest community District Heating System in existence.

Another interesting variation of the Public Heating idea is contemplated by an industrial corporation that is planning to enlarge its boiler plant and combine therewith a District Heating System. This proposed hook-up will enable the company to distribute steam over a wide area, reduce its own costs for heat and power and add to its net profits through the sale of steam.

In the case of Greene-Swift, Limited, clothing manufacturers of London, Ontario, Canada, the application of District Heating from their boiler plant grew, until today, the Cities Heating Company, Limited, (a subsidiary) is a full-fledged public utility serving almost the entire business district of London.

The executives of another large corporation are now making an analysis of the concentrated industrial section in which the plant is located with the idea in mind of producing high pressure steam for process and heating purposes to serve a

(Continued on Page Ten)
For Underground or Aerial Steam Mains

ADSCO Red Diamond Brand Casing

Insulation and conduit combined. Built up from thoroughly kiln-dried selected staves with tongue and groove. Staves wound with 3/16" galvanized steel wire, tightly drawn so that it is flush with the wood. Outside heavily coated with asphaltum. Inside lined with heat reflector of heavy AAAA charcoal tin plate.

ADSCO Variator (Packless Expansion Joint)

Cut shows Model "P". For pressure up to 125 lbs. Total traverse 2". Model "O" (not illustrated). Single with 1½" traverse and double with 2½" traverse for pressure up to 50 lbs. Built with service outlets and anchor plates. ADSCO Variators take up expansion and contraction in pipe line with heavy annealed corrugated copper diaphragm supported by steel backing plates. Install them, then forget them.

ADSCO Casing Construction

ADSCO casing construction used in 16 inch welded line of Consumers' Power Company at Grand Rapids, Mich.

ADSCO Duplex-Sleeve Guided Expansion Joint

For pressure up to 300 lbs. and any temperature up to 750°F. Designed to prolong life of packing. Air-cooled outer sleeve bearing against packing is maintained at considerably lower temperature than inner sleeve, which conveys the steam. This keeps packing cool — prevents deterioration — maintains tight joint...

ADSCO Multicell Tile Conduit

Built of extra strong salt-glazed tile. Withstands strains that would quickly crush or break ordinary conduit. Used by a high percentage of the leading District Heating companies for their high pressure mains for strength, insulating efficiency, long life, freedom from maintenance, conduit elasticity, accessibility and flexible construction.

Underground steam mains in Multicell Tile Conduit—Consumers' Power Company, Saginaw, Michigan.

ADSCO Roller Guide for Conduit Construction Model "F"

Species for Underground Aerial Steam Mains—High or Low Pressures

Expansion Joints—Meters—Casing & Valves—Steam Trap-Reducing Valves

ADSCO Saddle Plates

The ADSCO Saddle Plate affords strong support for pipe and protection to covering, while permitting of complete insulation. These are installed to ride on Model "F" Guides and so allow free movement of pipe.
Another Successful Season for N.D.H.A. Heating School
Purdue University

An interested group of men, many of them executives and superintendents of District Heating companies, attended the District Heating School conducted from May 21st to 26th at Purdue University, LaFayette, Indiana, by the National District Heating Association.

Two separate and simultaneous courses were held. Course I dealt with the more elementary subjects and was taken principally by those who did not attend last year’s course. Course II covered more advanced and applied subjects, and will be repeated in 1929 for those who took Course I this year. The choice of the two courses, however, was largely optional with the student.

Course I covered the following subjects:

- Heat and the properties of steam.
- Heat losses from buildings.
- Various types of heating and ventilating systems.
- Design of heating systems.

Flow of steam in pipes, Trends in steam power plant design and operation.

Course II dealt with:

- Underground construction (including heat losses.)
- Distribution system design.
- Operation of building heating systems.
- Reducing valves, traps and other appliances.
- Meters and rates.
- Estimating heat consumption of buildings.
- Trends in steam power plant design and operation.

The qualification for enrollment was a grade school or high school training. Anyone interested in the subject of District Heating was eligible, regardless of membership in the N. D. H. A. Information concerning the subjects covered will be supplied through Adasco's Engineers Service Department. They are always glad to learn of and help solve your problems in steam transmission and distribution.

Traffic Boon Seen in District Heating

The much talked of saturation point in the automobile industry has not arrived as yet — and at the rate which automobile companies are increasing their production facilities, it will be a long time before the industry will be obliged to reckon with it — if ever. This means an increasing number of cars crowding our boulevards and congesting the streets of our large cities like bees swarming from a hive.

Automobile manufacturers are now selling the public on the idea of two cars to a family — and their efforts are being crowned with success to such an extent that it is safe to predict that the day is not far distant when a large percentage of American families will own two cars.

All our large cities, even small towns, are feeling the effects of this ever-increasing tide of traffic. Stop lights — boulevard stops — parking restrictions — increasing speed limits on busy avenues do not begin to solve the problem. Instead of becoming better, conditions are continually growing worse.

Cities are appointing committees to travel around the country for the purpose of studying traffic conditions. Already several of our larger cities are considering the advisability of subways and double deck roads in congested districts in order to improve traffic conditions.

Chicago has a small freight subway in a limited area and last year opened its first double deck road, while New York has a traffic subway under the river. Detroit has discussed an elaborate system of double deck roads, although no definite decision has been reached.

It is a significant fact that practically all plans of this kind provide for one road for fast moving traffic and another for slow moving traffic. Anyone who has made a study of the subject knows that trucking, particularly heavy trucking, is one of the most serious causes of traffic tie-ups.

Another major cause of traffic congestion in the larger cities is the hauling of coal and ashes through the streets to and from thousands of in-
individual heating plants. Recognizing this, the Forty-Second Street Property Owners and Merchants Assn., Inc. of New York has launched a movement to encourage owners of large buildings to do away with individual heating plants — and to substitute steam from the District Steam Heating Utility Corporation.

The advantages of the plan were outlined in the following article which appeared in the April 15th issue of the New York Times under the heading "Traffic Boon seen in District Heating — Business Man Says Coal and Ash Trucks Block Midtown Streets: Elimination of the slow-moving coal truck from the midtown business districts as a remedy for speeding up automobile traffic is the aim of the Forty-Second Street Property Owners and Merchants Association, Inc., according to announcement made yesterday by Edward W. Forrest, Secretary and Treasurer of the Association. The first step toward attaining its purpose will be the launching of a movement to encourage owners of large buildings to do away with individual heating plants, and to substitute steam obtained from central stations by way of conduits.

A survey of traffic conditions in the midtown business section, Mr. Forrest said, revealed that the several hundred coal-delivery trucks and ash-removal trucks are responsible for a large measure of traffic congestion.

'While a coal truck is unloading or an ash truck is being loaded on a narrow street, traffic behind it is frequently piled up for more than a block before it can move,' said Mr. Forrest. 'If this happened only twice a day it would be negligible, but when it is repeated hundreds of times a day it becomes a serious matter.'

One of the companies in the midtown district supplies heat and power to 1,525 clients. To deliver the quantity of coal necessary to meet the demands of these clients, if they produced their own power and heat, would require 335 five-ton truckloads of coal each day for 300 days in the year, according to Mr. Forrest.

Although the business district of New York is probably the most congested area in the world, smaller cities, too, are faced with the problem of relieving traffic congestion and, where District Heating is available, recognize in this service, a distinct means of improving conditions.

For example, the Grand Rapids Press, in enumerating the advantages of District Heating in Grand Rapids, commented:

'District Heating will save the hauling through the streets of 3,350 truck loads of coal and 1,070 loads of ashes.'

As new customers are added and the service extended, District Heating becomes increasingly more effective as a marked assistance in the reduction of traffic congestion.

The great economic value of District Heating may even appear of secondary importance to the traffic committee, so urgent is the need for some corrective measures; but the effect remains the same: an ever-increasing interest in District Heating in its relation to civic life and municipal advancement.

**District Heating in Small Communities**

T HE more common utilities, light, power, water and gas, are dependent in a large degree upon the size of the community which can be reached from the plant, and in general each is limited to the extent that a certain population is required to provide a sufficient number of customers to make a financially attractive development.

So strong is the belief along these lines that many very satisfactory locations for a District Heating plant or a combined heating and electric utility plant are overlooked. An examination into the existing District Heating plants discloses some interesting developments in smaller communities which are outstandingly successful from an investment standpoint, as well as in rendering a real service to the community.

In Lockport, New York, a city of twenty-five thousand population, the first District Heating plant of the country is in very successful operation. Some interesting records of its operation are available in the form of a report covering four heating seasons of approximately eight months each. The average size of the houses served is 19,200 cubic ft. and the average amount of radiation per house is 320 square ft. One of the smaller houses served contains 11,600 cu. ft. and 250 sq. ft. of radiation. The steam consumption per season for this small house averages 114,000 pounds at $1.20 per 1000 pounds, represents a cost of heating of $136.00 per season. This figure compares favorably with the cost of heating with coal in an individual boiler and when the convenience of District Heating is taken into consideration the balance is thrown greatly in favor of this method.

However, the real conclusion of interest from the Lockport data, insofar as this article is concerned, is that small buildings, - homes — provide a profitable outlet for steam from a central source and that the smaller city offers desirable opportunities for the development of a District Heating project.

A decided contrast to many of the larger heating systems lies in Arcade, New York, with a population of 1,604, where a successful municipally owned heating and electric utility is operated. About eleven years ago when the addition of stand-by boiler was contemplated for the electric plant, District Heating was investigated and a $12,000 investment made in steam lines to provide heat for the buildings on the north side of main street. The consumers approved this service and as a result application was made for additional lines; another bond issue of $15,000 was voted to install mains for service to the remaining buildings on the main street, as well as the school house.
The school building, a three story frame structure, presents an interesting side light on District Heating. The third floor of this building was condemned due to fire hazard by the State Fire Commission, and equivalent space was rented for educational purposes. The substitution of “fireless heat” for the unit heating plant removed this restriction and effected an indirect economy due to District Heating. That the service rendered from the central plant was superior to that previously obtained is borne out by the fact that when the new school was built it was heated from the municipal plant.

Financially, this system is a success for, after paying all capital and operating charges, including interest on the bonds in the amount of $24,000, the revenue permits of retiring the bonds at the rate of $2,000 per annum. In addition to being financially sound, the system presents other advantages in Arcade, such as:

(1) The reduction of fire hazard in individual buildings, and results in lowered insurance rates.
(2) Elimination of the dust and dirt incident to the operation of private heating boilers in the stores and other buildings.
(3) Relief for the community from shortage of coal for domestic consumption.
(4) Furnishing heat to consumers at a cost only slightly exceeding their former cost of coal and eliminating the inconvenience of purchasing coal, disposing of ashes, and the labor and inconvenience of furnace operation.
(5) Production of electrical energy at a lower cost than was obtainable, prior to the addition of heating, to the municipal plant service.

Similar economies and benefits are obtained in other small but progressive communities, and among them are Penn Yan, New York, with a population of 4,500 and London, Ontario, with 61,000, the latter system having been fully described in a previous issue of the Advocate. In both cases the enterprise differs radically from the municipally owned Arcade plant, in that steam is furnished from the boilers of privately owned industrial plants.

These organizations, finding that they had boiler capacity in excess of their immediate requirements, installed distribution lines for the sale of steam to nearby buildings. From a small beginning these systems have grown to large proportions and now provide an important as well as profitable part of the business.

The aim in the presentation of this article and in the specific use of the plants at Lockport, Arcade, Penn Yan and London, is to point out that the size of a community is not a measure of the potential possibilities for a District Heating system in a given community. A more important consideration is the presence of an electric utility or an industrial organization with excess boiler capacity so located that there is adjacent to it a group of buildings of either commercial or domestic usage.

Perhaps the most obvious prospective locations lie in those towns where small utilities are now operated under municipal or private control. There are many of these, particularly in the middle west where power is generated with simple engines, from which the exhaust steam is wasted, and these present ideal locations. The steam is available—a waste product—which can be sold for heating purposes to increase the earnings of the plant and permit the production of power at a greatly reduced cost. In many cases these plants are located adjacent to the business section which offers the maximum number of consumers per 100 feet of distribution lines, but highly desirable residential sections are frequently also accessible. However, these locations are not the only ones, and in general it can be said that any community is a possible location for a District Heating system—until investigation proves the contrary.

FREQUENTLY ADSCO receives letters asking the cost of replacing underground steam lines that were installed a few years ago and expressing regret that their company did not call upon ADSCO in the first place.

Why do they write letters like this when the most casual investigation would convince them that ADSCO Red Diamond Brand Casing Construction for low pressure and ADSCO Multicell Tile Conduit for high pressure will last almost indefinitely. . . . and that ADSCO Expansion Joints and other specialties for underground steam lines are especially designed to do the work required and at a minimum cost?

The answer is simple. Too little thought was given to the matter and inefficient construction was used.

Avoid the mistakes that others have made. The successful design and installation of high and low pressure steam or hot water transmission or distribution piping, accommodation of pipe expansion, design of expansion joints, anchorage, steam traps, or any other equipment for underground steam mains is a job for men who have specialized in this branch of engineering.

Through the recommendations of ADSCO Engineers, large users of steam are saving thousands of dollars every year. The same advice is available to you through the ADSCO Engineers’ Service Department, which will be glad to give you the benefit of ADSCO’s 50 years’ experience in the design and installation of underground steam mains for power or heating purposes.

ENGINEERS’ SERVICE DEPARTMENT
AMERICAN DISTRICT STEAM COMPANY
GENERAL OFFICE AND WORKS
NORTH TONAWANDA, N. Y.

Specialists in Steam Distribution for over 50 Years
Scranton keeps its
District Heating System up-to-date

For several years past the Scranton Electric Company, whose original system was installed in 1894, has been busy rehabilitating its old lines and adding new mains. By extending its system and improving its efficiency, the Scranton Electric Company serves more customers every season and the popularity of the service justifies its “up to the minute” policy.

The illustration shows one of the recent additions to the underground steam mains of the Scranton Electric Company by the Northeastern Piping & Construction Corporation, whose services have been enlisted since the beginning of District Heating progress.

NORTHEASTERN PIPING & CONSTRUCTION CORPORATION
NORTH TONAWANDA, N. Y.
Subsidiary of
AMERICAN DISTRICT STEAM COMPANY
NORTH TONAWANDA, N.Y.
Branches and Agents in Principal Cities