After All...

it's experience that Counts

There is scarcely any need to add words to this photographic evidence to prove that Northeastern knows how to install steam lines. One glance at the illustration tells as much as a volume of words.

Consult with Northeastern engineers on your next steam line installation.

NORTHEASTERN PIPING & CONSTRUCTION CORP.
NORTH TONAWANDA, N. Y.
Branches and Agents in all Principal Cities

Subsidiary of

AMERICAN DISTRICT STEAM COMPANY
NORTH TONAWANDA, N.Y.
Over Fifty Years in Business
New
ADSCO INSULATION SUPPORTS

Prevents Sagging of Insulation
Reduces radiation loss

In conventional methods of installing insulation on a steam pipe, the insulation hangs on the pipe. The weight of the insulation, plus the weight of accumulated moisture gradually causes the covering to sag away from the pipe at the bottom and pull thin on top. The inevitable result is increased heat loss.

With the new Adasco Insulation Support, the insulation is cradled in wide brass bands. Each band is hung from a saddle which rests directly upon the upper surface of the pipe. Thus the insulation is permanently supported in correct position. Maximum insulating efficiency is maintained.

Adasco Insulation Supports are made for pipe sizes from 6" to 24" inclusive — for 1½", 2" and 3" covering.

Write for prices and complete information.

AMERICAN DISTRICT STEAM COMPANY
NORTH TONAWANDA, N.Y.
OVER 50 YEARS IN BUSINESS

WINNIPEG DISTRICT HEATING
BIG SUCCESS IN FIVE YEARS

1925 — Winnipeg builds its first district heating plant and launches its Municipal District Heating System. The glamour of its inaugural day echoes from one end of the country to the other. The optimists smile; the pessimists frown. Will the venture prove successful?

1931 — Again the papers of two countries carry "Winnipeg" headlines. This time to report, in glowing terms, the success of Winnipeg's District Heating System.

The Buffalo Evening News expresses frank envy of a city emancipated from the nuisance, dirt and financial burden of the individual heating plant.

The New York Times, in its article, reports, "Scheme started in 1925 saves users money and trouble, and provides plenty of heat. Within a few years a chimney on a Winnipeg house will be but an ornamental gesture, and the furnace a relic of an uninformed and extravagant past."

"Winnipeg takes the worry from Winter," a half page story in the Toronto Star Weekly, gives an interesting account of Winnipeg's District Heating System, and the plans for its future:

"In Winnipeg there are fourteen hundred buildings without coal shovels and wood-piles — whole streets of houses, offices, theatres and stores with smokeless chimneys, even when King Zero swings his stinging whip.

"Fourteen hundred buildings blessed by the smokeless, fireless, dirtless heat which comes from distant furnaces..."
"In a second residential district a small heating station in an underground room supplies the needs of more than two hundred homes. Last winter oil was the fuel used. This winter coal is employed.

"Now Winnipeg is building a $2,500,000 plant to heat more than three thousand houses.

Steam will go through mains to substations at strategic points, where it will be converted into hot water to be distributed to surrounding houses.

"And still larger extensions are under consideration."

The N. D. H. A. Convention

EXECUTIVES of District Heating Companies all over the country are now attending their annual "get-together." There is no doubt that they will return from the N.D.H.A. convention in Boston with many new ideas regarding the operation and maintenance of district heating plants. Boston, with native New England hospitality, is showing the convention delegates what a "Good time" really means.

The program committee, has outdone itself to make the conference valuable to every one attending. The program is replete with material of interest to every executive concerned with the successful development of District Heating. This is undoubtedly the largest N.D.H.A. Convention on record. Its success is forecast by the keen interest which is being shown by leaders in the N.D.H.A.

Soot Costs Each City Dweller $15 a Year

IN a survey by the American Chemical Society, Dr. Gustav Egloff reveals that coal soot costs each city resident an average of $15 a year, with a more serious menace in its "incalculable detriment to nerve force and health."

Dr. Egloff asserts that the annual soot damage in United States runs well over $500,000,000 — in excess wear and soil of clothing; impaired merchandise; damage to paint, metal work and the surface of buildings. He advises coal producers to anticipate changing conditions.

The report states emphatically: "The present smoke evil, due to the burning of coal in our cities, is a burden that an enlightened civilization should not tolerate."

Dr. Egloff might well have added the recommendation that all industrial centers incorporate District Heating as a major part of their plan to abolish the soot and smoke evil.
THE Modern Trend in HEATING

DISTRICT STEAM SERVICE VERSUS INDIVIDUAL BOILER PLANT OPERATION

By William C. Kaber, Sales Engineer, Union Electric Light & Power Co., St. Louis, Mo.

Have you ever noticed when entering different buildings that some are much more comfortable than others? A building can be maintained comfortable so much more easily when the supply of heat is constant and uniform. This is one of the many reasons why so many buildings are changing to Central Station steam service.

Not only do you have a more comfortable building, but a much healthier condition, due to the more even regulation of temperatures and the elimination of smoke and soot which would otherwise pollute the atmosphere. Buildings can be kept much cleaner and interior decoration costs materially reduced.

From a strictly economic standpoint, fuel is not the only item which makes up the heating cost. After adding together the miscellaneous items, one can readily see that the heating expense amounts to more than at first supposed. Space occupied by boilers, stacks, ash and coal bins, etc., should be considered, as this is usually valuable space and can be put into use to good advantage.

The following comparison is for a twenty-two story office building, built several years ago, in which had been planned the installation of four 400-horsepower boilers. The design and estimate as shown was agreed upon by the builders, heating contractor and utility company as being reasonable and fair:

**BOILER PLANT COST**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated boilers and auxiliaries</td>
<td>$80,000.00</td>
</tr>
<tr>
<td>Stack</td>
<td>11,000.00</td>
</tr>
<tr>
<td>Total estimated cost</td>
<td>$91,000.00</td>
</tr>
</tbody>
</table>

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SUMMARY

Coal, 2,050 tons at $4.00 per ton... $8,200.00
Ash removal at $1.00 per ton (410 tons)... 410.00
Boiler room labor as above—Fireman... 3,180.00
Maintenance (average for year—over 20-year period)... 3,600.00
Supplies and sundry expenses... 500.00
Water, 2,000,000 cu. ft. at 6c per 100 cu. ft... 150.00
Supervision... 1,000.00
Total operating cost per year... $17,040.00
Depreciation at 5% per annum (20-year life)... $4,000.00
Insurance 1½% per annum... 910.00
Taxes 2% per annum... 830.00
Interest at 6% per annum... 5,460.00
Total of general expenses per year... $11,190.00
Rent value of space in boiler room, 2,800 sq. ft. at 50c per sq. ft... $1,400.00
Rent value of stack space (16 ft. x 15 ft.) at $2.00 per sq. ft. equals 240 sq. ft. for 22 floors, equals 5,280 sq. ft... $10,560.00
Total of rentals per year... $11,960.00
Total cost per year... $40,190.00

Steam service to this building is costing $14,500.00 per year, which is less than the utility company had estimated. The saving to this building is about $27,000.00 annually.

Another building, which is a seven story building with light manufacturing on one floor, has shown a considerable saving. The building was formerly heated by stoker-fired boilers and the process steam was generated by a gas-fired boiler. With the isolated plant operation it cost this customer $4,400.00 whereas now it only costs $3,600.00 per year, and with this saving they have all the conveniences that go with district steam service and no more worry of shut-downs due to boiler troubles.

A few years ago a building owner came to us and inquired about having this building supplied with steam service. He had been able to heat his building for $4,000.00 per year with greater satisfaction and less trouble and inconveniences. He has since removed his boiler plant and this space is now bringing a rental of $2,000.00 per year, or a saving of $2,300.00 annually.

In the case of a smaller office building a comparison is shown in the following figures:

- **Fuel**... $460.00
- **Boiler repairs**... 160.00
- **Fireman**... 900.00
- **Ash hauling**... 25.00
- **Boiler insurance**... 5.00
- **Water**... 11.00
- **Boiler inspection**... 5.00
- **Miscellaneous**... 17.00

**Total operating cost per year**... $1,583.00

This building is now heated with district steam service for $875.00 per year, eliminating the smoke nuisance which was formerly experienced at the same time effecting a saving in building operating expense.

A comparison of a seven-story loft building is shown. A great number of this type of buildings are being heated with district steam. Fuel, $1,300.00; labor, $1,306.00; ash hauling, $60.00; repairs, $103.50; miscellaneous supplies, $51.42; boiler room lights, $26.90; water, $83.55; boiler inspection fee, $5.00 and boiler insurance, $10.00. This is a saving of $583.00 over the isolated plant.

(Concluded on Page 14)
SAFETY
FOR YOUR
HIGH PRESSURE
STEAM LINES

Because of the safety factor, if for no other reason, ADSCO Duplex-Sleeve Expansion Joints warrant the consideration of every user of high pressure steam lines.

To ADSCO's knowledge, in no single instance has a high pressure line "let go" due to the failure of an ADSCO Duplex Joint—and there are thousands of them in service.

This dependability is the result of five things which embody over 50 years of careful study; sound design; the rigid specifications set for metals; close tolerance in machining; the liberal factor of safety provided in every part; and the Duplex Air Insulated Sleeve by which circulating air is used to cool the outer sleeve against the packing, thus prolonging packing life, and preventing its premature destruction by heat.

For safety's sake, as well as long, efficient service, use ADSCO Expansion Joints on your steam lines.

For those who prefer a packless joint, ADSCO makes the Multiple Diaphragm Variator—for pressures to 250 lbs. and temperatures to 700 degrees F.
WELDING insures
Permanently Leakless Connections

Linde Air Products Company explains Steam Line Welding Processes

For many years a public utility company in a large Mid-Western city has supplied steam for heating certain buildings in the business district from a steam plant designed for the purpose. As the load increased, it was found necessary to supply additional steam from one of the principal electric power stations, located nearby, and an 18-in. high-pressure steam main was accordingly installed several years ago, connecting this station with the low-pressure mains in the business district. The end of this 18-in. main was blanked off to provide for further expansion and a 14-in. lateral was taken off to feed a sub-station where pressures were reduced for building service.

Considerable new building construction has been under way for the past year in this city, principally along two main streets, and to supply the new buildings, including a large bus terminal and hotel covering about two-thirds of a block, it was necessary to construct a new extension.

The new line is a 14-in. high-pressure main, 1,587 ft. in length, carrying steam at 180 lb. per sq. in. pressure, superheated to 650 deg. F. The line was to be laid in a busy section of the city alongside car tracks for several blocks and crossing two principal streets. When a high-pressure line is to be laid in such a location, it is essential that a method of construction be chosen that will insure freedom from trouble in the completed line, for many years to come. The contract awarded for the work, therefore, specified that all joints were to be oxwelded and high test welding rod used. Fig. 2 shows the new 14-in. branch welded into the 18-in. main.

The field construction crew of the contracting company who made the installation consisted of a foreman, assistant foreman, time-keeper, material clerk and several other skilled assistants. Local help was used for the concrete and tile laying and for other heavy work encountered on the job. The responsibility for opening and closing the trench and for repairing was taken by the owners of the line who could handle the matter of obtaining permits, right of way, and related details more easily than the contractor, because of their familiarity with the regulations of the local authorities in those matters.

Pipe used for the installation was 14-in. O.D. seamless having a wall thickness of 5/8-in. and weighing 72 lbs. per ft. It was furnished in random 20-ft. lengths, with ends machine-beveled for welding.

Ten expansion joints were placed in the line. These fittings were set in pairs, each pair in a manhole, making them accessible for inspection. These expansion joints had been provided at the factory with short pipe stubs welded to the body. The ends of these stubs were beveled so that they could be welded directly to the line on the expansion side and welded together between the two expansion joints. Usually this "in between" weld was an angle turn because expansion was usually taken care of at some change in direction of the line. Fig. 3 shows a pair of expansion joints ready for welding. The method of anchoring the expansion joints to the masonry of the manhole is indicated in Fig. 4.

One gate valve was installed close to the 18-in. line. Short pipe stubs were also welded in the shop to the body of this valve which were in turn welded into the line, Fig. 5. Thus the line was completely welded, including connections to expansion joints and valves.

Steam from the old 18-in. high-pressure line was used for testing and, since the sections were laid starting from the end tying into that main, steam was introduced from one section to the next by means of ½-in. pipe, welded into bull-plugs which were in turn temporarily welded to the ends of the sections.

All welding on this main was done by the foreman and assistant foreman. Rotating welds were made whenever possible, but because of the many expansion joints and changes in direction both in plan and elevation, it was necessary that half the joints be made in...
also had to be made in position. Where an angle turn greater than 221/2 deg. was required, a long-radius pipe bend was provided.

For either straight or angle joints, the beveled ends were butted together, properly spaced, tack welded at three quarter points and the weld commended at the fourth. The welds made by both the foreman and his assistant were fully fused to the bottom of the vee, slightly reinforced and a little wider than the opening of the vee at the top, about 2 1/4 times the pipe wall thickness. Pipe welds made by both these men had been frequently tested on other jobs by the regulation coupon tensile test method and both men appreciated that a fully penetrated, slightly reinforced weld gives maximum strength.

Time required for each weld was approximately 35 minutes for rotating welds on machine-beveled pipe and approximately 45 minutes for rotating welds on pipe beveled with the blowpipe. The position welds required about 5 minutes more ample for both types.

This extension was completed in from six to seven weeks. While there was only three weeks' actual work for one welder on the job, the foreman stated that matters were greatly facilitated by having two men.

Northeastern Piping & Construction Corp.

Busy In St. Louis, Mo.

The Union Electric Light & Power Company of St. Louis has just awarded a contract of nearly $300,000.00 to the Northeastern Piping & Construction Corp. The contract calls for the installation of 4,500 feet of 20-inch and 1,500 feet of 24-inch high pressure steam mains in the business section of St. Louis. When the work is completed it will make a total of nearly five miles of steam mains installed in the St. Louis District Heating System by the Northeastern Piping & Construction Corp.

Since 1905, the Union Electric Light & Power Company has supplied steam to a large area of the St. Louis business district. At the present time the St. Louis District Heating System includes most of the hotels, garages, billiard halls, department stores, churches, theatres, office buildings, banks and factories in the downtown district.

During the quarter of a century the St. Louis District Steam Heating System has been in operation, there has been no interruption in service which caused inconvenience to any consumer— a splendid record for any utility.

- NEW YORK STEAM CORP.

Shows Steady Growth

Despite building curtailment which materially reduced the number of new heating contracts, New York Steam Corporation continued its steady march to bigger profits during 1930—with an increase of over a million in earnings and a gross of $9,679,114.

A brief study of the corporation's figures for 1930 is illuminating. "The corporation's record gross earnings of last year totaled $9,679,114 compared with $8,559,769 for 1929, an increase of $1,119,345. Out of that amount after all charges, including 4.6% of gross for depreciation, a balance of 11%, or $1,061,541 was available for the common stock. Such earnings were equal to $4.21 a share on the average equivalent number of shares, 252,000, outstanding during the year. In 1929, 7% of gross earnings, or $667,139, was available for stock, equivalent to $2.77 a share on 240,000 shares outstanding at the end of the year."

Actually, however, a greater gain took place in both gross and net earnings. The quantity of steam billed to consumers during the year was 9,984,873,000 pounds compared with 8,500,802,000 in 1929, an increase of 1,484,071,000, or more than 16%.

During the past year, the length of mains and services was increased to 330,402 feet from 303,138 feet, a net addition of 27,264 feet. A greater footage of mains was laid than in any other year in the history of the corporation. Extensions to the distribution system during the year were 46,264 feet, or more than 13%. Buildings without boilers constitute more than 75% of the total.

New York Steam Corporation's Kips Bay Station

The contents of buildings served by the corporation, or under contract, on December 31, 1930, aggregate 1,928,363,000 cubic feet, compared with 1,748,016,000 cubic feet at the end of the previous year, or an increase of more than 13%. Buildings without boilers constitute more than 75% of the total.
The Modern Trend in Heating
(Continued from Page 1)

is a total of $3,179.17 as compared with purchased service at a cost of $2,875.00 per year. When this building was formerly heated from its isolated plant difficulty was experienced in heating the upper floors on cold mornings and quite frequently much time was lost by employees being unable to work. Since the outside steam service has been installed this condition no longer exists. Another type of building which has found district steam service of great advantage has been a musical instrument house. After the company's engineer had completed the survey of the premises they showed a saving on only $100.00 to the prospect. However, there was a greater saving that was considered of more importance. That was the cleanliness and uniform temperature which could be maintained with the outside service. A considerable saving was made due to the elimination of dust and dirt from highly polished surfaces of pianos and other musical instruments and with the uniform temperature sound board no longer warped, making it necessary to retune and, in some cases, the replacement of a sound board.

Comparison after comparison of this kind could be shown to demonstrate that district steam service is economical, reliable and clean. The accompanying pictures show what a difference there is in cleanliness and space when outside service is used.

BUFFALO PAPERS APPLAUD DISTRICT HEATING PROGRESS

Eventually, great cities which have not adopted District Heating, come to the realization that they are missing something. Buffalo is one of these cities; and twice recently, the Buffalo Evening News has expressed its admiration for those municipalities which are supplying the individual heating plant with District Heating service. In one editorial the News says, "The great company of household furnacemen and ash-can toters in Buffalo must have read with interest and some envy the story told the other day in the News of the happy lot of Lockport householders who are released from winter drudgery in the cellar — who have no furnaces to stoke and no ashes to carry out.

The wonder is that the plan (District Heating) is not more widely adopted. In Canada, it is making progress. Winnipeg, where winters are punishingly severe, has a great and steadily growing district heating plant. Owen Sound, Ont., now is considering the idea of using an old electrical generating plant, for general heating service. In some American cities district heating has been developed, but on a relatively small scale. Meanwhile apartment houses multiply to accommodate those to whom furnace stoking and ash carrying have become hateful. If steam were available at the turn of a tap, most men would prefer their own rooftree.

Save Time
by Consulting with Our Engineers

For over 50 years, the entire time of Adsco Engineers has been devoted to the planning and development of large underground steam systems.

Working independently and in collaboration with District Heating Engineers, they have faced and conquered the most intricate and difficult problems in steam line construction. If you are contemplating a new steam line, you will find their experience of genuine help in securing the fullest economy and efficiency from your new system.

The cooperation of Adsco Engineers — even to the point of visiting your city — is available to you on any major steam pipe installation.

When you are ready, get in touch with ENGINEERS SERVICE DEPARTMENT AMERICAN DISTRICT STEAM COMPANY NORTH TONAWANDA, N. Y. OVER FIFTY YEARS IN BUSINESS