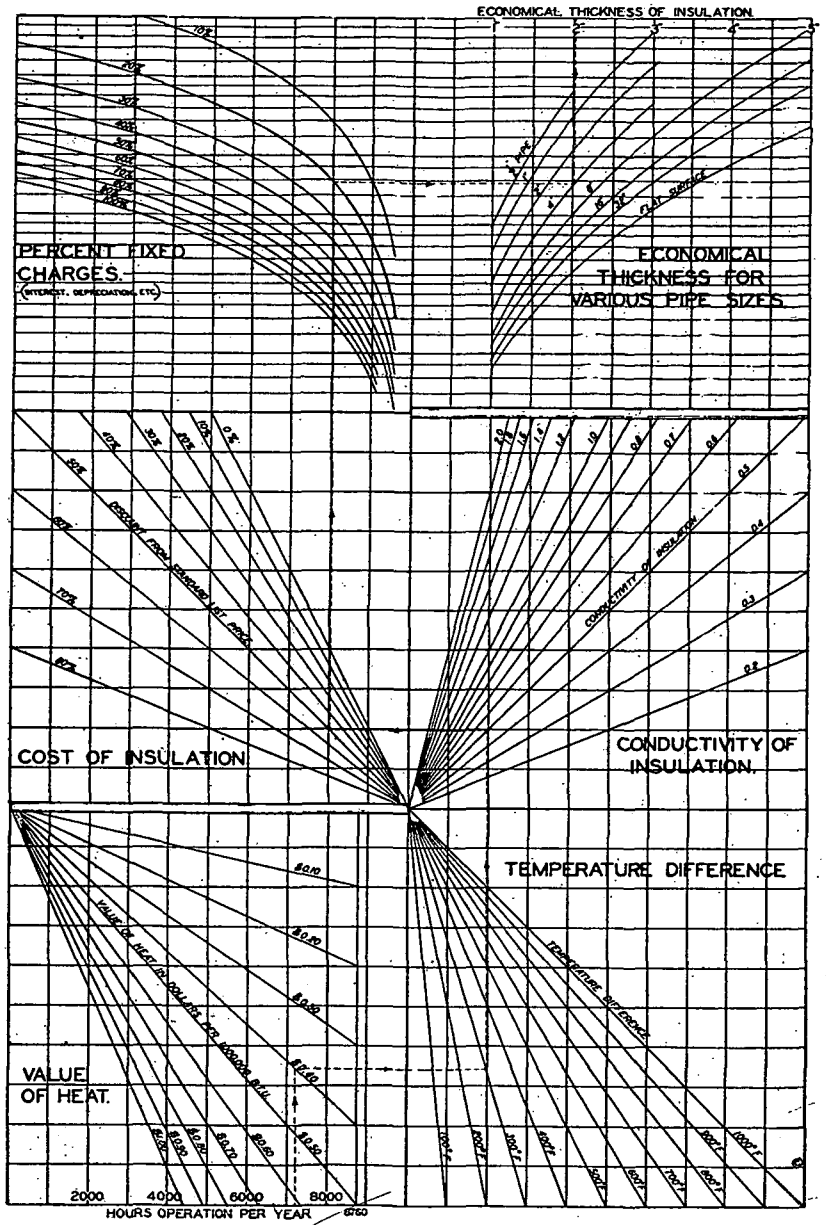

(L. B. McMillan, *Proc. National Dist. Heating Ass'n.*, Vol. 18, p. 131.)

FIG. 9. CHART FOR DETERMINING ECONOMICAL THICKNESS OF INSULATION

CHAPTER XVI

AUTOMATIC HEAT CONTROL

Types of Thermostats, Applications of Automatic Control Air Washers, Unit Heaters, House Heating Systems, Domestic Hot Water, Gas Burning Appliances, Industrial Applications, Double Control, Test Data on Temperature Regulators.

IN the best functioning of many social and commercial services, automatic temperature regulation is proved to be necessary, not only to comfort and health, but also to the prevention of waste and to the perfection of manufacturing processes.

Temperature control is usually achieved by preventing overheating. It follows that *automatic heat control* is a better term than automatic temperature regulation, and it is obvious that automatic heat control in itself must always effect economy.

Overheating is much more common than underheating, and the results of overheating are more harmful to health and efficiency.

All heating equipment must be sufficient in capacity to render acceptable service under the most arduous conditions. The most arduous conditions, especially as to extreme cold outside, are in effect only a small part of the heating season. It may surprise many people to realize that in Chicago, for instance, the most extreme cold prevails only on about six days per year.

During the balance of the heating season the heating apparatus must be operated at much less than full capacity—generally in colder climates at about 40 per cent of the maximum.

Hence there is ample ability and strong probability for overheating during the major part of each heating season unless automatic control of the heating apparatus is provided.

Ventilating systems without automatic heat control give trouble both from excessive overheating and from drafts.

Rooms heated by radiators can be cooled more quickly by opening windows than by shutting radiator valves, so that it is found that great heat waste occurs through open windows and open radiator valves, unless automatic heat control is furnished.

Gas and oil heaters and similar devices using quickly responsive fuels become prohibitively expensive for fuel unless automatic heat control is used.

Service hot-water heaters must have automatic heat control, not only for economy and satisfaction, but also to prevent scalding the bodies of users.

Automatic heat control is responsible for a goodly share in the increase in efficiency of modern manufacturing processes, especially in saving of

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