

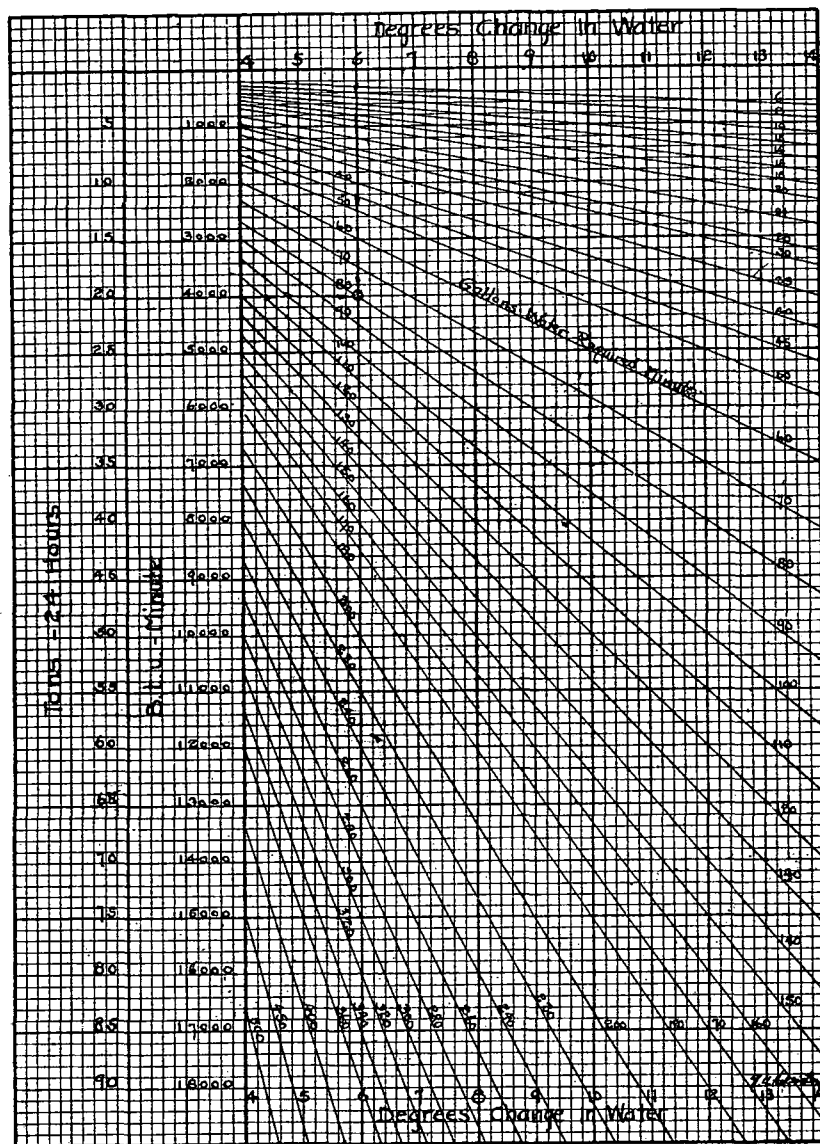


FIG. 78. GALLONS WATER REQUIRED PER MINUTE

heat is applied to air saturated at 50 deg. both thermometers will rise, the wet bulb more slowly and the relative humidity will be reduced. At ordinary temperatures the absorption of 1 grain of moisture per cu. ft. reduces the dry bulb temperature $8\frac{1}{2}$ deg.

The usual way of adding moisture to air in large plants is with the use of an air washer while in homes and offices water pans in furnaces, or devices used in connection with radiators tend to better prevailing indoor conditions. While with air washers the degree of humidity as well as the temperature can be definitely controlled, in the average dwelling little attention is paid to these items as contrasted with factories, theatres, schools and other large buildings.

USE OF REFRIGERATION IN AIR CONDITIONING*

The advantages of one method of cooling air over another and the general factors governing the proportioning and design of air conditioning units are of interest to all whose work may bring them in contact with systems using refrigeration. It is the purpose of this section to give those not familiar with this important branch of air conditioning a better understanding of how refrigeration is applied in this work.

The producing of the refrigeration for an air conditioning installation is a problem for the engineer, and is the same as any other refrigerating problem with a varying load. The method of treatment of the air, and its distribution is a separate study involving the entire subject of air conditioning.

The remaining problem, then, in connection with the use of refrigeration in air conditioning is the actual application of refrigeration in a unit or apparatus for cooling the air.

The transfer of heat in air conditioning apparatus is usually accomplished by one of three methods:

1. Passing air through cold water or cold brine sprays
2. Passing air directly over cold coils
3. Combination of the above two methods

COLD SPRAYS VS. COLD COILS

A liquid spray which absorbs the heat from the air and transfers it to cooling coils is more frequently used than cooling coils in direct contact with the air, for the following reasons:

1. Fewer coils required, therefore lower first cost, less space and weight
2. Low power for driving compressor
3. Ease of keeping unit clean
4. Ease of controlling effect on air
5. Securing of air cleaning
6. Humidity control in winter

*Section on Cooling with Refrigeration compiled especially for THE GUIDE by N. A. Hollister, New York, N. Y.