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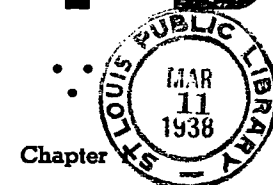
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HEATING VENTILATING AIR CONDITIONING GUIDE

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Chapter

AIR, WATER AND STEAM

Dalton's Law, Temperatures, Air Properties, Humidity, Rela-
tive Humidity, Specific Humidity, Relation of Dew Point to
Relative Humidity, Adiabatic Saturation of Air, Total Heat
and Heat Content, Enthalpy, Psychrometric Chart, Properties
of Water, Properties of Steam, Rate of Evaporation

AIR conditioning has for its objective the supplying and maintaining, in a room or other enclosure, of an atmosphere having a composition, temperature, humidity, and motion which will produce desired effects upon the occupants of the room or upon materials stored or handled in it.

Dry air is a mechanical mixture of gases composed, in percentage of volume, as follows¹: nitrogen 78.03, oxygen 20.99, argon 0.94, carbon dioxide 0.03, and small amounts of hydrogen and other gases.

Atmospheric air at sea level is given in percentage by volume as: N₂ 77.08, O₂ 20.75, water vapor 1.2, A 0.93, CO₂ 0.03 and H₂ 0.01. The amount of water vapor varies greatly under different conditions and is frequently one of the most important constituents since it affects bodily comfort and greatly affects all kinds of hygroscopic materials.

DALTON'S LAW

A mixture of dry gases and water vapor, such as atmospheric air, obeys Dalton's Law of Partial Pressures; each gas or vapor in a mixture, at a given temperature, contributes to the observed pressure the same amount that it would have exerted by itself at the same temperature had no other gas or vapor been present. If p = the observed pressure of the mixture

¹International Critical Tables.