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CHAPTER 1

Terminology

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Glossary of Physical and Heating, Ventilating, Refrigerating and Air Conditioning Terms Used in the Text

Absolute Zero: The zero from which absolute temperature is reckoned. Approximately −273.2 C or −459.8 F.

Absorbent: A material which has the ability to take up water vapor but which changes physically, chemically, or both, during the cycle.

Absorption: A process in which a fluid, liquid or gaseous, passes into the interstices of a porous substance and is held there by absorption or capillarity (G.P.)[a]

Acceleration: The time rate of change of velocity *i.e.*, the derivative of velocity with respect to time. In the cgs system the unit of acceleration is the centimeter per (second) (second), in the fps system the unit is the foot per (second) (second) $a = \frac{dv}{dt}$.

Acceleration Due to Gravity: The rate of gain in velocity of a freely falling body, the value of which varies with latitude and elevation. The international gravity standard has the value of 980.665 cm per (second) (second) or 32.174 ft per (second) (second) which is the actual value of this acceleration at sea level and about 45 deg latitude.

Adiabatic: An adjective descriptive of a process in which no heat is added to or extracted from the system executing the process.

Adsorbent: A material which has the ability to hold water or other vapors on its internal surfaces without itself being permanently changed physically or chemically.

Adsorption: A term applied to the phenomena connected with the adherence of molecules of a foreign substance to the surface of a solid or a liquid (G.P.).

Aerosol: An assemblage of small particles, solid or liquid, suspended in air. The diameters of the particles may vary from 100 microns down to 0.01 micron or less *e.g.* dust, fog, smoke.

Air Cleaner: A device designed for the purpose of removing air-borne impurities such as dusts, gases, vapors, fumes and smokes. (Air cleaners include air washers, air filters, electrostatic precipitators and charcoal filters.)

Air Conditioning: The simultaneous control of all or at least the first three of those factors affecting both the physical and chemical conditions of the atmosphere within any structure. These factors include temperature, humidity, motion, distribution, dust, bacteria, odors and toxic gases, most of which affect in greater or lesser degree human health or comfort. (*See Comfort Air Conditioning.*)

Air, Dry: In psychrometry, air unmixed with, or containing no, water vapor.

Air, Saturated: A mixture of dry air and saturated water vapor, all at the same dry-bulb temperature.

Air, Standard: Air weighing 0.075 lb per cubic foot. This is the density at standard atmospheric pressure (29.921 in. Hg) of dry air at 69.41 F and of saturated air at 60.12 F.

Air Washer: An enclosure in which air is drawn or forced through a spray of water in order to cleanse, humidify, or dehumidify the air.

Anemometer: An instrument for measuring the velocity of a fluid.

Aspect Ratio: In air distribution outlets the ratio of the length of the core of a grille, face or register to the width.

In rectangular ducts the ratio of the width to the depth.

Atmospheric Pressure: The pressure due to the weight of the atmosphere. It is the pressure indicated by a barometer. *Standard Atmospheric Pressure* or *Standard Atmosphere* is the pressure of 76 cm of mercury having a density of 13.5951 grams per cubic centimeter, under standard gravity of 980.665 cm per (second) (second). It is equivalent to 14.696 lb per square inch or 29.921 in. of mercury at 32 F.

Baffle: A surface for deflecting gases or fluids, usually in the form of a plate or wall.

Blast Heater: A set of heat transfer coils or sections used to heat air which is drawn or forced through it by a fan.

Blow (throw): In air distribution, the distance an air stream travels from an outlet to a position at which air motion along the axis reduces to a velocity of 50 fpm.

[a] From Glossary of Physics, by LeRoy Dougherty Weld (McGraw-Hill, 1937).