hygroscopic: absorptive of moisture, readily absorbing and retaining moisture.

hygrostat: same as *humidistat*.

ice melting equivalent: the amount of heat absorbed by one lb of ice at 32 F in liquefying to water at 32 F, 144 Btu.

inch of water: a unit of pressure equal to the pressure exerted by a column of liquid water 1 in. high at a temperature of 4 C or 39.2 F.

indicator diagram: pressure-volume diagram tracing condition of gas in a compressor or engine cycle in terms of pressure and volume displaced.

induction: the entrainment of room air by the jet action of a primary air stream discharging from an air outlet.

induction unit, room air: a factory-made assembly consisting of a cooling coil, or cooling and heating coil, and means for delivering preconditioned air (received under pressure from an external source), mixed with recirculated air by the air-induction process, to the space being conditioned. This device is normally designed for free delivery of air into the space.

infiltration: air flowing inward as through a wall, crack, etc.

insulation, sound: acoustical treatment of fan housings, supply ducts and other parts of system and equipment for isolation of vibration, or to reduce transmission of noise.

insulation (thermal): a material having a relatively high resistance to heat flow, and used principally to retard the flow of heat.

intercooling: removal of heat from compressed gas between compression stages.

irradiation: subjecting foods, etc., to radiations of special wavelengths, such as the 0.2537 micron wavelength, which kills certain bacteria. Quantity of radiant energy incident on a surface per unit time and unit area.

is-, iso-: prefix meaning constant; as isothermal, constant temperature; isentropic, constant entropy; isobaric, constant pressure; etc. In chemicals, one having different characteristics but with the same number and kind of atoms.

isentropic: an adjective describing a reversible adiabatic process; a change taking place at constant entropy.

isobaric: an adjective used to indicate a change taking place at constant pressure.

isothermal: an adjective used to indicate a change taking place at constant temperature.

joint, brazed (high-temperature): a gas-tight joint obtained by the joining of metal parts with alloys which melt at temperatures higher than 1500 F but less than the melting temperatures of the joined parts.

joint, brazed (low-temperature): a gas-tight joint obtained by the joining of metal parts with metallic mixtures or alloys which melt at temperatures below 1500 F but above 1000 F.

joint, mechanical: a gas-tight joint obtained by the joining of metal parts through a positive holding mechanical construction (such as flanged joint, screwed joint, flared joint).

joint, soldered: a gas-tight joint obtained by the joining of metal parts with metallic mixtures or alloys which melt at temperatures below 1000 F.

joint, welded: a gas-tight joint obtained by the joining of metal parts in the plastic or molten state.

Joule-Thomson effect: the ratio of temperature change to pressure change (dT/dp) of an actual gas in a process of throttling or expansion without doing work or interchanging heat.

lag: the delay in action of the sensing element of a control device, due to the time required for the sensing element to reach equilibrium with the property being controlled; i.e., temperature lag, flow lag, etc.

liquefaction: change of state to liquid, generally used instead of condensation in case of substances ordinarily gaseous.

liquid indicator: a device, frequently combined with a strainer, located in the liquid line of a refrigerating system and having a sight port by which liquid flow may be observed for presence of bubbles.

liquid line: the tube or pipe carrying the refrigerant liquid from the condenser or receiver of a refrigerating system to a pressure-reducing device.

liquid receiver: a vessel permanently connected to a system by inlet and outlet pipes for the storage of (condensed) refrigerant.

liquor: a solution used in absorption refrigeration.

load, estimated design: in a heating or cooling system, the sum of the useful heat transfer, plus heat transfer from or to the connected piping, plus heat transfer occurring in any auxiliary apparatus connected to the system.

load, estimated maximum: in a heating or cooling system, the calculated maximum heat transfer that the system will be called upon to provide.

load, usage: the sum of the air change, product and miscellaneous loads on a refrigerator; the sum of the loads exclusive of the wall heat gains.

load factor: ratio of actual mean load to a maximum load or maximum production capacity in a given period.

locker plant: cold storage establishment containing food storage boxes or lockers for individual users.

louver: an assembly of sloping vanes intended to permit air ventilation to pass through and to inhibit transfer of water droplets.

low side: parts of a refrigerating system at or below evaporator pressure.

low temperature: temperature below ordinary refrigerating plant requirements; say, from 30 F on down. Also any part of a system below another parallel refrigerating level of temperature.

lyophilization: the process of dehydrating a frozen substance under conditions of sublimation; e.g., vacuum-freeze drying.

machinery room: a room in which is permanently installed and operated a refrigerating system but not including evaporators located in a cold storage room, refrigerator box, air-cooled space, or other enclosed space. Closets solely contained within and opening only into a room shall be considered a part of such room and not as a machinery room.

main: pipe or duct for distributing to or collecting from various branches.

manifold: portion of main in which several branches are close together. Also, single piece in which there are several fluid paths.

manometer: an instrument for measuring pressures; essentially a U-tube partially filled with a liquid, usually water, mercury, or a light oil, so constructed that the amount of displacement of the liquid indicates the pressure being exerted on the instrument.

mass: the quantity of matter in a body as measured by the ratio of the force required to produce given acceleration, to the acceleration.

mechanical equivalent of heat: an energy conversion ratio of 778.177 ft lb = 1 Btu.

medium, heating: a solid or fluid, such as water, steam, air or flue gas, used to convey heat from a boiler, furnace or other heat source, and to deliver it, directly or through a suitable heating device, to a substance or space being heated.

medium, refrigerating: a solid or fluid, such as a refrigerant, ice, dry ice, or brine, used to absorb heat, either directly or through a suitable refrigerating device, from a substance or space being refrigerated, and to transfer this heat to a refrigerating device or system.

melting point: for a given pressure, the temperature at which the solid and liquid phases of a substance are in equilibrium.

metabolism: chemical changes in living cells by which energy is provided for vital processes.

meter: unit of length = 39.37 inches. Also instrument for measuring rates or integrating rates over a period of time.

micron: a unit of length, the thousandth part of 1 mm or the millionth of a meter.

millimeter of mercury: a unit of pressure equal to the pressure exerted by a column of mercury 1 mm high at a temperature of 0 C.

modulating: of a control, tending to adjust by increments and decrements; also one modified by variation of a second condition.

mol: a weight of a substance numerically equal to its molecular weight. If the weight is in pounds the unit is a *pound mol*, in grams the unit is a *gram mol*.

motor, air: an air-operated device which is used primarily for opening or closing dampers.

motor, capacitor: a single-phase induction motor with a main winding arranged for direct connection to a source of power and an auxiliary winding connected in series with a capacitor.

noise reduction: a reduction or loss in sound transmission from one space to another space, through one or more parallel paths of: ceiling-furred plenum-ceiling, through partitions, along ventilation ducts, or door-corridor-door.

oil separator: a device for separating oil and oil vapor from the refrigerant, usually installed in the compressor discharge line.

oil still: a device to separate oil from refrigerant by a distillation process.

organic compound: originally a chemical compound produced by a life process. Now generally understood to include all compounds containing carbon.

outlet, ceiling: a round, square, rectangular, or linear air diffuser located in the ceiling, which provides a horizontal distribution pattern of primary and secondary air over the occupied zone and induces low velocity secondary air motion through the occupied zone.

outlet, slot: a long narrow air distribution outlet, comprised of deflecting members, located in the ceiling, side-wall, or sill, with an aspect ratio greater than 10, designed to distribute supply air in varying directions and planes, and arranged to promote mixing of primary air and secondary room air.

outlet, vaned: a register or grille equipped with vertical and/or horizontal adjustable vanes.

output: capacity; duty; performance; net refrigeration produced by system.

outside air opening: any opening used as an entry for air from outdoors.

overall coefficient of heat transfer (thermal transmittance): the time rate of heat flow through a body per unit area, under steady conditions, for a unit temperature difference between the fluids on the two sides of the body.

ozone: triatomic oxygen, O_3, sometimes used in air conditioning or cold storage as an odor eliminator; can be toxic in certain concentrations.

packing: the stuffing around a shaft or valve stem to prevent fluid leakage.

packing plant: an establishment engaged in the slaughtering, dressing and processing of animals. Also one used in connection with the processing of vegetables or fish.

parallel, connection in: system whereby flow is divided among two or more channels, from a common starting point or header.

parallel flow: in heat exchange between two fluids, hottest portion of one meeting coldest portion of the other.

pasteurization: heat treatment, usually at 131~158 F, for killing bacteria as in milk without greatly changing its chemical composition.

Peltier effect: the evolution or absorption of heat which occurs when an electric current is passed across the junction between two different metals.

performance factor: ratio of the useful output capacity of a system to the input required to obtain it. Units of capacity and input need not be consistent.

performance factor, refrigerating system: the ratio of the useful refrigerating effect of the system to the power input.

perm: the unit of permeance. A perm is equal to 1 grain per (sq ft) (hr) (inch of mercury vapor pressure difference).

permeability: water vapor permeability is a property of a substance which permits passage of water vapor, and is equal to the permeance of a 1 in. thickness of the substance. When permeability varies with psychrometric conditions, the *spot* or *specific permeability* defines the property at a specific condition. Permeability is measured in perm-inches.

permeance: the water vapor permeance of a sheet of any thickness (or assembly between parallel surfaces) is the ratio of water vapor flow to the vapor pressure difference between the surfaces. Permeance is measured in perms.

phase: in thermodynamics one of the states of matter, as solid, liquid, gaseous; electrical, an alternating current whose alternations have a definite time relation to the rotational position of the alternator. In a polyphase machine, the phases are separated by 360 electrical degrees divided by the number of phases.

phosphorous pentoxide: a drier material; it becomes gummy on reacting with moisture and hence is not used as a drying agent in refrigerating systems.

pipe, copper or brass: seamless tube conforming to the particular dimensions commercially known as *Standard Pipe Sizes*.

plenum chamber: an air compartment connected to one or more distributing ducts.

pneumatic: operated by air pressure.

polytropic change: any set of changes in a gas represented by the equation, $pV^n = \text{constant}$.

potentiometer: an instrument for comparing small electromotive forces, or for measuring small electromotive forces by comparison with a known electromotive force. Its principal advantage is that, during the measurement, no current flows through the source of electromotive force.

power: the rate of performing work. Common units are horsepower, Btu per hour, and watts.

power consumption: power used multiplied by time, measured in kwhr, hphr, etc. (Power is the rate of work; power consumption is work.)

precooler: cooler for the removal of sensible heat before shipping, storing, or processing. Device for cooling a fluid before it enters some piece of apparatus.

preheating: in air conditioning, to heat the air in advance of other processes.

pressure: the normal force exerted by a homogeneous liquid or gas, per unit of area, on the wall of its container.

pressure, absolute: pressure referred to that of a perfect vacuum. It is the sum of gage pressure and atomospheric pressure.

pressure, atmospheric: 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 cu cm, under standard gravity of 980.665 cm per (sec) (sec). It is equivalent to 14.696 psi or 29.921 in. of mercury at 32 F.

pressure, back (suction): operating pressure measured in the suction line at the compressor inlet.

pressure, dynamic: same as *total pressure*.

pressure, gage: pressure measured from atmospheric pressure as a base. Gage pressure may be indicated by a manometer which has one leg connected to the pressure source and the other exposed to atmospheric pressure.

pressure, head: operating pressure measured in the discharge line at a compressor outlet.

pressure, hydrostatic: the normal force per unit area that would be exerted by a moving fluid on an infinitesimally small body immersed in it, if the body were carried along with the fluid.

pressure, operating: the pressure that would be indicated by a gage in the part of the system involved when the system is in normal operation.

pressure, partial: portion of total gas pressure of a mixture attributable to one component.

pressure, saturation: the saturation pressure for a pure substance for any given temperature is that pressure at which vapor and liquid, or vapor and solid, can coexist in stable equilibrium.

pressure, static: the normal force per unit area that would be exerted by a moving fluid on a small body immersed in it if the body were carried along with the fluid. Practically, it is the normal force per unit area at a small hole in a wall of the duct through which the fluid flows (piezometer) or on the surface of a stationary tube at a point where the disturbances, created by inserting the tube, cancel. It is supposed that the thermodynamic properties of a moving fluid depend on static pressure in exactly the same manner as those of the same fluid at rest depend upon its uniform hydrostatic pressure.

pressure, suction (back): operating pressure measured in the suction line at a compressor inlet.

pressure, total: in the theory of the flow of fluids; the sum of the static pressure and the velocity pressure at the point of measurement. Also called *dynamic pressure*.

pressure, vapor: the pressure exerted by a vapor. If a vapor is kept in confinement over its liquid so that the vapor can accumulate above the liquid, the temperature being held constant, the vapor pressure approaches a fixed limit called the maximum, or saturated, vapor pressure, dependent only on the temperature and the liquid. The term *vapor pressure* is sometimes used as synonymous with *saturated vapor pressure*.

pressure, velocity: in moving fluid, the pressure capable of causing an equivalent velocity, if applied to move the same fluid through an orifice such that all pressure energy expended is converted into kinetic energy.

pressure drop: static pressure loss in fluid pressure, as from one end of duct to the other, due to friction, etc.

pressure-limiting device: a pressure-responsive mechanism designed to stop automatically the operation of the pressure imposing element at a predetermined pressure.

pressure regulator, evaporator (back-pressure valve): an automatic valve located between the evaporator outlet and compressor inlet that is responsive to its own inlet pressure or to the evapora-