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Glossary of

Refrigeration, heating, ventilating and air-conditioning terms

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Committees responsible for this British Standard

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Contents

Foreword

This revised British Standard has been prepared under the direction of the Refrigeration, Heating, and Air Conditioning Standards Committee. It includes a number of terms additional to those in the 1979 edition which is superseded and withdrawn.

The guiding principles during preparation of the glossary have been:

a) to include all technical terms that are commonly used in the refrigeration, heating, ventilating, and air-conditioning industries to form a comprehensive and self-contained document;

b) to provide definitions that are concise and definitive rather than descriptive;

c) to rely on established definitions and those from other British Standards and from International Standards wherever possible.

In applying these principles, terms of very narrow application (such as those relating only to a point of detail in a piece of specialized equipment) have been omitted. Some commonplace terms have been included, however, where the technical meaning is narrower than, or differs from, the dictionary definition.

An overlap with other British Standard glossaries occurs with certain terms that are widely used both in this field and in other industries, examples being boiler plant, controls, fans, and valves. In these cases:

a) overlap terms have been included only to the extent that they are in common use in the refrigeration, heating, ventilating, and air-conditioning industries;

b) the definitions in this glossary relate to the usage in the field which the glossary covers and they may differ from the usage in other fields;

c) for more comprehensive or alternative definitions of these overlap terms, reference should be made to the British Standard glossary for the particular industry.

Terms are in alphabetical order throughout. With terms comprising a noun and an adjective, the listing is generally under the noun with the adjective following so that related terms appear together. In a few cases the relationship is through the adjective rather than the noun, and these are listed under the first word. These cases are cross-indexed to facilitate ready reference.

As the definitions are not descriptive it will in some cases be necessary to refer to standard technical guides for practical applications or for statements of current practice.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 86 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Term	Definition
absolute humidity	*see* humidity, absolute.
absolute roughness	*see* roughness, absolute.
absorber	In an absorption refrigerating system, the part in which refrigerant vapour is absorbed.
absorption	A taking up of the molecules of a fluid by capillary, osmotic, chemical or solvent action.
absorption, sound	*see* sound absorption.
absorption coefficient, solar	The value of solar absorptivity for a surface.
absorption coefficient, sound	*see* sound absorption coefficient.
absorption refrigerating system	*see* refrigerating system, absorption.
absorptivity	The fraction of the incident radiation that is absorbed by a surface on which it falls.
absorptivity, solar	The ratio of the amount of solar radiation absorbed by a surface to that falling on the surface.
accelerated control	*see* control, accelerated.
access door	A door providing access to an installation for maintenance or inspection purposes.
acclimatization	Becoming accustomed to a particular climate or environment.
accumulator, hot water	A vessel in which heat is stored as hot water for use as required.
accumulator, refrigerant	A vessel in the low pressure side of a system to contain liquid refrigerant.
accumulator, steam	Vessel in which heat is stored as steam for use as required.
acid dewpoint	The temperature at which vapour in flue gases condenses when acid products of combustion are present.
acoustics	The science of sound waves including the properties of production and propagation.
activated carbon filter	*see* air filter, activated carbon.
actuator	A device which, on receipt of an electrical or pressure signal, produces a mechanical movement capable of regulating energy or fluid flow.
adiabatic mixing	The mixing of substances without the addition or removal of heat.
adiabatic process	A thermodynamic process in which there is no addition or removal of heat.
adiabatic saturation	The extent to which a gas can take up liquid without a change in heat content.
adiabatic saturation temperature	*see* temperature of adiabatic saturation.
adjustable flow rate (air) diffuser	*see* air diffuser, adjustable flow rate.
adjustable grille	*see* grille, adjustable.
adjustable pattern (air) diffuser	*see* air diffuser, adjustable pattern.
adjustable pitch fan	*see* fan, axial flow, adjustable pitch.
admittance	The measure of the ability of a surface to smooth out temperature variations.

Term	Definition
adsorber	In an adsorption refrigerating system, the part in which refrigerant or water vapour is adsorbed.
adsorption	A process whereby a solid takes up a fluid by surface adhesion.
adsorption refrigerating system	*see* refrigerating system, adsorption.
after cooler	a) A heat exchanger designed to treat air as the final cooling process in a system. b) A heat exchanger for the removal of heat from a fluid as the final cooling process in a system.
after filter	*see* air filter, after.
after heater	A heat exchanger designed to treat air as the final heating process in a system.
agitator	A device for causing turbulent motion in a fluid.
air, dry	*see* dry air.
air, excess	*see* excess air.
air, exhaust	Air flow leaving the treated space.
air, extract	Exhaust air that is discharged to atmosphere.
air, fresh	Air from free atmosphere that is sufficiently uncontaminated to be used for ventilation.
air, make-up	*see* make-up air.
air, primary	a) Air for combustion purposes admitted directly to or with the fuel. b) Air introduced into a ventilation or air conditioning system from outside. c) In an induction system, air supplied to the terminal units from a central plant.
air, recirculation	Exhaust air returned to the air treatment system.
air, relief	Exhaust air which is allowed to escape from the treated space if the pressure in the space rises above a specified level.
air, return	Air exhausted from a conditioned space and returned to central plant for recirculation or discharge to waste.
air, secondary	a) Combustion air admitted in proximity to the fuel for the purpose of completing the combustion. b) Room air entrained and set in motion by air discharge from a grille.
air, supply	Air flow entering the treated space.
air, transfer	Exhaust air which passes from the treated space to another treated space.
air assisted pressure jet oil burner	*see* oil burner, steam (or air) assisted pressure jet.
air blast freezer	*see* freezer, air blast.
air bottle	A container for collecting air, for example from a high point of a hot water heating system.
air change rate	The replacement of the volume of air in an enclosure in unit time.
air cock	*see* cock, air
air compressor	*see* compressor (air).

Term	Definition
air-conditioner, room	*see* room air-conditioner.
air-conditioning	A form of air treatment whereby temperature, humidity, ventilation, and air cleanliness are all controlled within limits determined by the requirements of the air-conditioned enclosure.
air-conditioning, air-water system	*see* system, air-water.
air-conditioning, all air system	*see* system, all air.
air-conditioning, comfort	Air-conditioning to satisfy the comfort requirements of the occupants of the air-conditioned enclosure.
air-conditioning, complete	Air-conditioning in which the temperature and humidity are independently controlled.
air-conditioning, full	The application of air-conditioning to all the usable spaces in a building other than transit areas, stores, toilets and the like.
air-conditioning, partial	The application of air-conditioning to some, but not all, of the usable areas in a building.
air-conditioning, year round system	A complete system which ventilates, heats and humidifies in winter, cools and dehumidifies in summer, the air in the spaces under consideration and provides the desired degree of air cleanliness and motion.
air-conditioning convector (deprecated)	*see* convector, air-conditioning.
air cooled condenser	*see* condenser, air cooled.
air cooler	*see* cooler, air.
air cooler battery	*see* battery, air cooler.
air curtain	A stream of air that creates a barrier between two spaces which are at different conditions.
air cushion	A quantity of air deliberately collected at a point in a heating circuit to minimize variations in pressure with temperature.
air cycle refrigerating system	*see* refrigerating system, air cycle.
air diffuser	A supply air terminal device usually placed in the ceiling and generally of circular, square or rectangular form and composed of divergent deflecting members.
air diffuser, adjustable flow rate	An air diffuser incorporating a device for varying air flow rate without affecting the direction of the air jets.
air diffuser, adjustable pattern	An air diffuser that incorporates an integral device by means of which the direction of the air jets can be varied.
air diffuser, ceiling	An air diffuser suitable only for ceiling mounting.
air diffuser, fully adjustable	An air diffuser that invorporates independent devices to achieve the following: a) variation of the direction of the air jets without alteration of the air flow rate; and b) variation of the air flow rate without alteration of the direction of the air jets.
air diffusion	The distribution of the air in a space by means of air terminal devices.

Term	Definition
air distribution	The transportation of a specified air flow to or from the treated space or spaces, generally by means of ducts.
air filter	A device for removing particulate contaminants from an air stream.
air filter, activated carbon	A carbon pack filter.
air filter, after	A filter used to collect particulate matter downstream of another filter.
air filter, automatic roll	A time-controlled rotary screen, or panel viscous filter.
air filter, cleanable	A filter of which the medium can be washed or wiped.
air filter, coarse	An air filter used to remove the largest particles of dust.
air filter, dry	A filter with a processed foam plastic or brush type fabric.
air filter, electrostatic	An air filter that applies an electric charge to the dust particles in the airstream, and collects, precipitates or builds up the particles on plates of opposite charge.
air filter, fabric	A filter using a fabric medium panel construction with a filter medium of fabric.
air filter, graduated density	An automatic dry type of filter in which advancement of various grades of filter media is normally controlled by a pressure differential switch.
air filter, grease	A washable filter normally located within the hood over kitchen appliances.
air filter, high efficiency	A filter that can remove a high proportion of all particle sizes.
air filter, impingement	An all metal construction viscous filter with a high dust-loading capacity.
air filter, mechanical	A filter that depends on dynamical principles.
air filter, panel	An air filter in which the medium is constructed on one or more frames to facilitate withdrawal.
air filter, pre-	A filter used to remove coarse particles and some initial dust load from the air before it passes to other filters.
air filter, replaceable media	A non-cleanable filter in which the filter medium, when dirty, is discarded and replaced by a new one.
air filter, rotary viscous	A time-switch controlled rotary screen or rotary panel viscous type filter.
air filter, self-cleaning	A moving curtain dry or viscous impingement type of filter.
air filter, terminal	A filter located in ductwork close to the outlet grille from the same duct.
air filter, throw-away	A filter comprising one or more panels which, when used, are replaced by new ones.
air filter, viscous	An air filter comprising a number of wetted surfaces for collecting dust from the airstream.
air filter, wet	Air washers that act as air cleaning devices.
air filter blow-off	Collected dust inadvertently blown from a filter into the airstream.
air filter cell	An interchangeable frame containing a filtering material.

Term	Definition
air filter dust holding capacity	The mass of dust which a filter can retain at rated air flow during an increase in resistance from that under "clean" conditions to the resistance at some arbitrarily chosen value. It is usually twice the value of the pressure drop at clean conditions.
air filter efficiency	The measure of the ability of a filter to remove dust from the air.
air filter life	The duration before the efficiency of filtration falls to an unacceptable level.
air filter medium	The material forming the operative part of a mechanical filter.
air filter resistance	The drop in pressure across a filter at some specified condition of the filter itself.
air filter resistance, final	The drop in pressure across a filter at the end of a specified period and conditions of use.
air filter resistance, initial	The drop in pressure across a filter in the "unused" condition.
air filter test, blackness	An on-site optical test which uses normal airborne impurity instead of methylene blue dust.
air filter test, gravimetric	A test in which efficiency is defined as the ratio of the mass of dust retained on the filter to the mass of dust fed to it.
air filter test, methylene blue	A test using methylene blue dust in which the staining power of the dust before and after passage through the filter is determined from optical density measurements of samples taken in the determination of efficiency.
air filter test, optical	A test in which the relationship of change in optical density of the filter paper to volume of the sample is a measure of efficiency.
air filter test, sodium flame	A test based on the characteristic yellowing of a hydrogen flame by sodium chloride.
air flow pattern	The variation of air velocity and direction over a given cross section or in an enclosure.
air flow rate	The mass or volume of air moved in unit time.
air flow rate controller	That type of controller in which the measured variable is the rate of air flow.
air flow switch	*see* switch, air flow.
air heater battery	*see* battery, air heater.
air, intake	The air drawn into a system by mechanical means.
air lighting troffer	*see* lighting troffer, air.
air lock	The obstruction by air of the movement of a liquid in a system.
air-lock	An ancillary chamber giving access to an enclosure without changing the conditions in it and restricting leakage of air from or into the enclosure.
air movement	That flow element of a microclimate of an enclosure that relates to velocity and direction of air.
air pollution	The contamination of air by noxious gases or dust particles.
air space	A volume of air that may or may not be completely enclosed.
air temperature	*see* temperature, air

Term	Definition
air terminal device	A device located in an opening provided at the boundaries of the treated space in order to ensure a predetermined air movement within the space.
air transport factor	The ratio between the rate of sensible heat removal from a ventilated or air-conditioned space and the power input to the supply, return, recirculating and extract fan motor(s).
air treatment	A process by which one or more of the following characteristics of air are modified: a) temperature; b) humidity; c) cleanliness.
air vessel	An air-containing vessel fitted to the delivery side of a reciprocatory water pump to smooth out the pulsating discharge.
air washer	A device for intimately mixing water and air, the air leaving the device at a condition approaching saturation.
air washer, capillary cell	An air washer having a series of pads sprayed with water through which the air passes.
air washer, spinning disc	An air washer that utilizes a spinning disc to produce a fine spray of water through which the air passes.
air washer, spray	An air washer with one or more banks of nozzles spraying atomized water into or with the air stream.
air washer, saturation efficiency of	The proportion of water added to the air leaving the washer expressed as a percentage of the amount of water that could have been added if the air had left the washer in a fully saturated condition.
air-water system	*see* system, air-water.
all air system	*see* system, all air.
all water fan coil system	*see* system, all water fan coil.
altitude, solar	*see* solar altitude.
altitude gauge	*see* gauge, altitude.
amines, filming	Nitrogen-containing compounds that form a protective film on metal surfaces in closed water or steam systems.
amines, neutralizing	Nitrogen-containing compounds that reduce corrosion within water or steam systems by raising pH and neutralizing carbon dioxide.
analyzer, refrigerant	In an absorption refrigerating system a small fractionating column between the generator and the rectifier or condenser.
anchor, equipment	In a pipeline, a securing device to maintain a point fixed both in position and direction under the design condition of temperature and loading.
anchor, pipe	A form of pipe support that restrains movement.
anechoic	*see* non-reverberant (anechoic).
anemometer	A device used for measuring air or gas velocities.
angle of divergence	The undivided angle of the spread of a jet issuing from a grille.
angle screw down stop valve	*see* valve, screw down stop, angle.

Term	Definition
anodic protection	A system for passivating steel by making it the anode of a protective system.
anthracite	*see* coal, anthracite.
anti-vibration mounting	A resilient support to attenuate the transmission of vibration between machinery and the structure on which it is supported.
apparatus dew point	The point on a psychrometric chart where the straight line passing through the state points representing the air entering and the air leaving a cooling coil or air washer cuts the saturation line.
appliance, balanced flue	*see* balanced flue appliance.
appliance, domestic heating	*see* domestic heating appliance.
apportioning heat meter	*see* meter, heat apportioning.
articulated bellows	*see* bellows, articulated.
ash	The solid matter remaining after the incineration of organic material.
aspect ratio	The ratio of breadth to width of a rectangular duct.
assisted circulation boiler	*see* boiler, assisted circulation.
Assmann psychrometer	*see* psychrometer, Assmann.
atmospheric condenser	*see* condenser, atmospheric.
atomization	a) Reduction of liquid fuel to finely divided droplets preparatory to combustion. b) Reduction of water in an air washer into fine droplets to assist saturation of the air.
atomizing oil burner	*see* oil burner, atomizing.
atomizing pressure jet oil burner	*see* oil burner, atomizing pressure jet.
attemperator	A desuperheating device to permit control of the final superheated steam temperature.
attenuation, sound	*see* sound attenuation.
automatic air valve	*see* valve, automatic air.
automatic control valve	*see* valve, automatic control.
automatic roll filter	*see* air filter, automatic roll.
auxiliary switch	*see* switch, auxiliary.
averaging relay	*see* relay, averaging.
axial bellows	*see* bellows, axial.
axial flow fan	*see* fan, axial flow.
axial velocity	*see* velocity, axial.
azeotrope	A liquid phase of a two or more component solution that is in equilibrium with a vapour phase of identical composition.
azimuth, solar	*see* solar azimuth.
Bacharach number	A number on a scale that indicates the level of discoloration of a standard filter paper by carbon in flue gases drawn in under standard conditions.
back boiler	*see* boiler, back.
back pressure	*see* a) pressure, back

Term	Definition
	b) pressure, suction (back).
back pressure regulation valve	*see* valve, back pressure regulation.
background central heating	*see* heating, central, background.
background heating	*see* heating, background.
backward curve fan	*see* fan, backward curve.
baffle	a) A partition fitted in a fluid circulating system for the purpose of redirecting fluid flow.
	b) A refractory construction the function of which is to change the direction of flow of the products of combustion.
baffle plate	A partition fitted in a fluid circulating system for the purpose of redirecting fluid flow.
balance pipe	A low resistance pipe connecting a flow and return in a multipump system to prevent the main pump interfering with the branch flow.
balanced draught	*see* draught, balanced.
balanced flue appliance	A room-sealed appliance having the inlet for combustion air and the outlet for products of combustion in adjacent external positions and so disposed that wind effects are substantially balanced between them.
balanced flue boiler	*see* boiler, balanced flue.
balanced flue heater	*see* heater, balanced flue.
balancing of system	*see* system, balancing of.
balancing valve	*see* valve, balancing.
ball float valve	*see* valve, ball float.
ball joint	A joint comprising a partly spherical (or semi-spherical) element and a corresponding cavity permitting relative movement or change of alignment.
ball valve	*see* valve, ball.
barograph	A device that measures and records atmospheric pressure.
barometer	A device that measures atmospheric pressure.
baseboard heating	*see* heating, skirting.
battery, air cooler	A heat exchanging device for cooling the air which is passed through it.
battery, air heater	A heat exchanging device for heating the air which is passed through it.
Baudelot cooler	*see* cooler, Baudelot.
bellows, articulated	An assembly incorporating expansion bellows to accommodate lateral movement in a pipeline.
bellows, axial	An assembly incorporating expansion bellows to accommodate axial movement in a pipeline.
bellows, expansion	A flexible, corrugated, tubular element for transmitting or accommodating movement of a pipeline.
bellows seal	*see* seal, bellows.

Term	Definition
bend	A pipe or duct fitting which changes the direction of flow through an angle of 90° or other specified angle with a significant radius of turn.
bifurcated fan	*see* fan, bifurcated.
bituminous coal	*see* coal, bituminous.
black smoke	*see* smoke, black.
blackness test	*see* air filter test, blackness.
bleed(ing)	Releasing of unwanted air from a water system.
bleed off	Cooling water run to waste to prevent the build-up of undissolved solids.
bleed pipe (refrigerant)	a) In an absorption system (aqua-ammonia): a pipe through which water-ammonia solution is drawn from the evaporator and passed to the absorber. b) In a vapour compression system: a pipe through which oil-refrigerant solution is drawn from the evaporator parallel with the main flow.
blender	A device to mix fluids at different conditions.
block heating	*see* heating, block.
block storage heater	*see* heater, block storage.
block valve	*see* valve, block.
blow down	The release of water under pressure from the lowest part of a boiler to free it of sludge and reduce the dissolved solids content of the water.
blow down valve	*see* valve, blow down.
blow-off	*see* air filter blow-off.
blow through system	*see* system, blow through.
blower	A rotary air compressor for supplying a relatively large volume of air at low pressure.
boiler	A vessel in which heat is applied to water and, depending on the chosen working pressure of the system, is used either to produce a supply of hot water or to evaporate water to steam.
boiler, assisted circulation	A boiler in which natural circulation of water is assisted by mechanical means.
boiler, back	A boiler integral with a direct-fired solid fuel or gas fire.
boiler, balanced flue	A room-sealed boiler having the inlet for combustion air and the outlet for products of combustion in adjacent external positions and so disposed that wind effects are substantially balanced between them.
boiler, corner tube	A water-tube boiler having a box-shaped furnace that derives structural support from downcorner tubes of relatively large diameter at each corner.
boiler, domestic	A hot water boiler of suitable size and design for use in a dwelling.
boiler, dual fuel	A boiler that can be operated with two different fuels.

Term	Definition
boiler, economic	A horizontal cylindrical shell boiler with one or more furnace tubes from front to rear tube plate from which the gases pass to a combustion chamber. From the chamber the gases pass through a bank of small diameter smoke tubes either to the front of the boiler whence they are discharged (double pass), or to a second bank of smoke tubes through which the gases are returned from the front to the back of the boiler whence they are discharged (treble pass).
boiler, economic, dryback	An economic boiler having the combustion chamber attached to the boiler and not surrounded by water.
boiler, economic, semi-wetback	A treble pass economic boiler having an unlined combustion chamber surrounded by boiler water except at the end, which is sealed by a refractory-lined door.
boiler, economic, wetback	A treble pass economic boiler having an unlined combustion chamber surrounded by boiler water.
boiler, electrode	A boiler in which heat is produced by the passage of an electric current through the liquid to be heated.
boiler, forced circulation	A boiler within which the water is circulated mechanically.
boiler, gas	A boiler that burns gaseous fuel.
boiler, gravity feed	An independent solid fuel boiler in which the fuel travels by gravity from an integral fuel hopper to a static grate.
boiler, (central) heating	A boiler applied to a closed hot water circulating system from which water is not directly drawn off for domestic purposes.
boiler, high pressure hot water	A boiler in which pressure is increased in order that heat may be added and higher temperatures allowed without reaching boiling point.
boiler, hot water	A boiler in which water is heated to a temperature less than the boiling point at the working pressure.
boiler, h.w.s.	A boiler used for direct hot water supply.
boiler, independent	A freestanding closed domestic appliance designed solely for a water heating service. There are three types: a) Boilers that have fixed or shaking bottom grates and may be thermostatically controlled. b) Boilers that are gravity fed and thermostatically controlled, the ash normally being removed as clinker. c) Boilers that have integral underfeed stokers and are thermostatically controlled.
boiler, natural circulation	A boiler within which circulation of the water takes place because of changes in density.
boiler, oil-fired	A boiler that burns liquid fuel.
boiler, packaged	A boiler, together with its ancillary equipment, fabricated and delivered in a minimum number of units, designed to expedite installation and commissioning.
boiler, sectional	A boiler built up of component sections, usually cast iron, each having individual integral waterways. The sections are generally produced in several standardized size ranges and the rated output of the boiler is determined by the number of sections incorporated.

Term	Definition
boiler, shell type	A boiler in which water is contained in a cylindrical shell, heat being transmitted to the water from furnace or smoke tubes or through the shell.
boiler, solid fuel	A boiler that burns solid fuel.
boiler, standby	A boiler in a boiler plant capable of satisfying the demand peak when another boiler is inoperative.
boiler, steam	A boiler in which heat is applied to evaporate water.
boiler, summer	A boiler that is selected to match the demand during summer months.
boiler, vertical	A shell type boiler having the axis of the cylinder vertical.
boiler, vertical, cross-tube	A vertical shell boiler in which a single vertical uptake leads the products of combustion from the furnace through the water space and steam space of the boiler and in which the furnace is traversed by one or more large diameter water tubes.
boiler, waste heat	A boiler that utilizes waste heat from gases supplied from an external source.
boiler, water-tube	A boiler in which water is contained inside tubes alone or inside tubes, drums and headers, some or all of which are heated by the products of combustion.
boiler capacity	*see* boiler power.
boiler efficiency	The ratio of the useful energy output from a boiler to the energy input to the boiler.
boiler flow temperature	*see* temperature, boiler flow.
boiler house	A building housing boiler plant and associated equipment.
boiler plant	One or more boilers and associated equipment.
boiler power	The maximum useful energy obtained from a boiler operating under normal conditions.
boiler rating	Boiler power as designated by the manufacturer.
boiler room	An area within a building housing boiler plant.
bourdon gauge	*see* gauge, bourdon.
boost	*see* early morning boost.
booster	A supplementary pump or compressor to assist the circulation of fluid, especially the low stage compressor in a compound compression refrigerating system.
booster station	A sub-station containing equipment for supplementing the main plant by increasing the circulating temperature or pressure.
boundary layer	A thin layer of fluid adjacent to a conduit wall. The velocity is zero at the wall, and at the outer limit of the layer the velocity is that of the free stream flowing through the conduit.
bracket	A projecting support.
brine	An aqueous solution of a salt used as a cooling medium or as a defrosting medium.
brine cooler	*see* cooler, brine.
bucket (steam) trap	*see* steam trap, bucket.

Term	Definition
building services	The energy-consuming systems in a building and all other engineering elements of the built environment excluding its structure.
bund wall	A wall surrounding one or more oil storage tanks to retain the contents in the event of tank failure.
bunker	A storage room or container for solid or liquid fuel.
burner	A device for admitting fuel and air to a furnace in controlled proportion for combustion.
burner, oil	*see* oil burner.
bursting disc	A safety device that will rupture at a predetermined pressure.
bush	A pipe fitting to reduce the effective size of a femal fitting or increase the effective size of a male fitting.
butane	*see* gas, liquefied petroleum.
butterfly damper	*see* damper, butterfly.
butterfly valve	*see* valve, butterfly.
button, control	A push button to operate a switch or release mechanism.
button, control, emergency	A control having a prominent head for the specific purpose of initiating predetermined safety measures.
button, reset	A push button to reset a circuit to normal after an abnormal condition.
button, start	A push button that completes a circuit and either directly or indirectly connects a power source to start a machine or process.
button, stop	A push button that interrupts a circuit and either directly or indirectly disconnects a power source to stop a machine or process.
button, stop and reset	A push button that combines the duties of "stop" and "reset" functions.
bypass	A pipe or duct, usually controlled by a valve or damper, for conveying fluid around an element of a system.
bypass valve	*see* valve, bypass.
cabinet, refrigerator	A thermally insulated enclosure of reach-in dimensions. That part of a refrigerator intended for the storage of perishables.
calibration	All the operations for the purpose of determining the values of the errors of a measuring instrument (and, if necessary, to determine other metrological properties).
calorific value	The number of heat units obtained by the complete combustion of unit mass of fuel.
calorific value, gross	Calorific value where the water produced by the combustion of the fuel is assumed to be completely condensed and its latent heat released.
calorific value, net	Calorific value where the water produced by the combustion of the fuel is assumed to remain as a vapour.
calorifier	An apparatus used for the transfer of heat to water in a vessel by indirect means, the source of heat being contained within a pipe or coil (annulus) immersed in the water.

Term	Definition
calorifier, heating	A calorifier used primarily for space heating, usually in a closed circuit.
calorifier, hot water	A calorifier used in open-circuit domestic hot water systems.
calorifier, non-storage	A calorifier with no storage capacity.
calorifier, storage	A calorifier incorporating a capacity from which hot water can be drawn off.
calorimeter room	An enclosure in which controlled air conditions of pressure, temperature and humidity, etc., can be used in the testing of heating, ventilating and refrigerating equipment.
capacity reducer	In a compressor: a device by which the capacity of the compressor can be adjusted, such as clearance pocket, moveable cylinder head, suction valve lifter, or suction bypass.
capillary cell air washer	*see* air washer, capillary cell.
capillary tube	A tube having a small diameter bore, e.g. connecting the temperature sensing phial with the bellows or the diaphragm of a control device.
capillary tube restrictor	A device for controlling refrigerant flow rate. A length of small bore tube employed to feed liquid refrigerant to an evaporator.
capture velocity	*see* velocity, capture.
carcass	The shell of a building.
carry-over	a) Condensation from the fins of a cooler battery, blown forward by the velocity of the air passing through the battery. b) Excess moisture in the air leaving an air washer as a result of inefficient elimination. c) Water droplets and impurities carried by steam from a boiler to a superheater.
cascade heat exchanger	*see* heat exchanger, cascade.
cascade system	*see* system, cascade.
casing drain	Pipe allowing drainage of moisture from equipment.
cathodic protection	A means of protecting metal against corrosion by water by control of the electro-chemical potential, using a sacrificial metal anode suspended in the water.
cavitation	A phenomenon that may occur at points of low pressure within a liquid (such as at the suction side of a pump) whereby a cavity is formed, separated from the rest of the liquid by a surface of discontinuity, and filled with a non-homogeneous liquid/vapour mixture.
cell, air filter	*see* air filter cell.
cellular dust collector	*see* dust collector, cellular or multi-cell.
ceiling (air) diffuser	*see* air diffuser, ceiling.
ceiling effect	The tendency for air discharged from an outlet to stay close to the ceiling thus increasing the throw of the outlet.
central heating	*see* heating, central.
central heating boiler	*see* boiler, (central) heating.
central station	The concept of centralized plant as opposed to local units.
centrifugal compressor	*see* compressor, centrifugal.

Term	Definition
centrifugal fan	*see* fan, centrifugal.
centrifugal pump	*see* pump, centrifugal.
centrifugal separator	*see* separator, centrifugal.
chain grate stoker	*see* stoker, chain grate.
change pole controller	*see* controller, change pole.
change pole switch	*see* switch, change pole.
characteristics	Key values that designate the performance of plant or equipment under different operating conditions.
characteristic curve	A graphical representation of equipment characteristics.
charge	The amount of fluid, e.g. refrigerant or lubricating oil, in a system.
check valve	*see* valve, check.
chemical energy	*see* energy, chemical.
chill	A condition similar to cold but of a lesser intensity.
chill storage	The process of preserving perishable materials by refrigeration at a temperature slightly higher than the freezing point of water.
chiller, water	Any type of unit in which water is cooled by refrigerant.
chiller, water, packaged	A self-contained unit incorporating equipment for lowering the temperature of flowing water.
chimney	Any structure or any part of the structure of a building, other than a flue pipe, that forms part of a flue.
chimney effect	The tendency of air or gas in a duct or other vertical passage to rise because of its lower density compared with that of the surrounding air or gas.
chlorination	A process in water that treatment consists of the addition of chlorine.
circuit[a]	The pipe or duct configurations in which fluid flows.
circuit, primary	a) A closed circuit between a boiler and an indirect calorifier. b) In a cascade heat exchange process, the circuit associated with the principal heat exchanger. c) In any series of circuits interconnected by heat exchangers, that circuit connected to the principal energy transforming device.
circuit, secondary	a) The draw-off circuit from a hot water supply calorifier. b) Any circuit of pipework deriving its energy from a primary circuit.
circulating pressure	*see* pressure, circulating.
circulation, assisted	The enhancement of natural circulation of fluid by mechanical means.
circulation, forced	*see* forced circulation.
circulation, gravity	*see* gravity circulation.
circulation, natural	*see* natural circulation.

[a] Other circuits such as electrical circuits are not referred to here.

Term	Definition
circulation pump	*see* pump, circulation.
cistern	A rigid open top enclosure for the containment of liquids.
cladding	A protective skin applied over damage-prone material.
clarification	A process in water treatment for the removal of turbidity.
clean room	A room in which a high level of freedom from contamination is maintained.
cleanable air filter	*see* air filter, cleanable.
cleaning door	A means of access to parts of equipment where dust may collect such as the combustion air passes of a boiler.
clearance fraction	In a positive displacement compressor, the clearance volume divided by the swept volume.
clearance volume	In a positive displacement compressor that volume not displaced by the piston or rotor at the end of the delivery stroke.
climatic test chamber	An enclosure within which the micro-climate can be controlled and varied to simulate the wide range of weather conditions that can be met in different parts of the world.
clinker	The fused material formed as a residue in high temperature processes.
closed system	*see* system closed.
coagulation	A process in water treatment to facilitate settling and flocculation of suspended matter.
coal	A combustible sedimentary rock, formed from variously altered plant remains consolidated under superimposed strata.
coal, anthracite	Coal of the highest rank with a semi-metallic lustre.
coal, bituminous	A general term descriptive of coal other than anthracite and low-volatile coal on the one hand and lignite on the other.
coal, dry steam	Coal of rank just below anthracite.
coal tar fuel (CTF)	The distillation product of high or low temperature carbonization of coal.
coarse air filter	*see* air filter, coarse.
cock	A shut-off device that can be operated to move its port or ports relative to the body ports to control the flow of fluid.
cock, air	A cock or valve for releasing air from a liquid system.
cock, bib	Tapered plug or gland packed cock.
cock, compound gland	A cock in which the plug is retained in the body by the cover, the stuffing box being formed in the cover.
cock, drain	*see* valve, drain.
cock, draw-off	*see* valve, draw-off.
cock, gland	A taper-seated cock in which the plug is retained in the body by means of a gland and gland packing.
cock, plug	A taper-seated cock in which the plug is retained in the body by means of a washer, screw and nut at the smaller end of the plug.
cock, plug, lubricated	*see* valve, plug, lubricated.

Term	Definition
cock, straight way	A cock in which the orifice of the plug is in line with the inlet and outlet connections and whose cross-sectional area is not less than 2/3 the area of the relevant inlet pipe.
cock, three-way	A cock of which the plug can be turned into one of three positions thereby allowing flow to be shut off, or discharged through one or other of two outlets.
coefficient of performance	Ratio of refrigerating capacity to the work supplied, each expressed in the same units.
coil	A heat-exchanging battery made of tubing formed into a compact shape by spiral or serpentine configuration.
coil, cooling	A heat exchanger of coil form intended to reduce the temperature of fluid passing in or around or through it.
coil, direct expansion	A cooling coil in which liquid refrigerant evaporates causing a cooling effect.
coil, dry expansion	A direct expansion coil in which the refrigerant is totally evaporated in a single pass.
coil, heating	A heat exchanger of coil form intended to raise the temperature of fluid passing in or around or through it.
coil, sprayed	A cooling coil that is sprayed with water.
coils, run-around	An arrangement of two air-to-water heat exchangers, with inter-connecting pipe work and a circulating pump, which reclaims heat from the exhaust air and transfers it to the incoming fresh air of a ventilation system.
coke	The coherent residue left when coal is carbonized.
coking stoker	*see* stoker, coking.
cold chain	A chain of sequential facilities whereby packaged frozen foods are transported, stored and distributed under refrigeration, ensuring that the food is maintained within prescribed temperature limits.
cold rated input	A manufacturer's recommended input to a gas appliance when the appliance is cold.
cold storage	The process of preserving perishables by refrigeration.
cold store	A thermally insulated building comprising one or more chambers, artificially cooled, holding perishables at a predetermined temperature.
colorimetric test	A test based on developing a colour in a sample of water proportional to the amount of substance present; this colour is then compared with a standard colour for a known concentration of the substance.
column radiator	*see* radiator, column.
combination grate	A built-in or self-setting appliance combining the functions of living-room fireplace, cooker and boiler, the oven being in the same room as the fire. This term is usually prefixed by "side" or "oven-over-fire" to indicate the position of the oven.
combustion air heater	A device for preheating air supplied for combustion by utilizing the hot combustion products.

Term	Definition
combustion chamber	A confined space in which the combustion of any unburnt products leaving a furnace may be completed or (especially with oil) a high temperature zone immediately down-stream of the burner in which combustion is generally completed.
combustion equipment	The units necessary to provide heat to a boiler.
comfort	Conscious well-being.
comfort air-conditioning	*see* air-conditioning, comfort.
comfort condition	An environmental condition in a space such that the majority of the occupants should, on statistical evidence, be comfortable.
comfort index	A numerical scale related to human comfort computed from measurements of: dry bulb temperature; wet bulb temperature; mean radiant temperature; air movement.
comfort zone	An area, usually presented graphically, expressing some or all of the parameters of comfort and defining the limits within which the majority of occupants will be comfortable.
commissioning	The advancement of an installation from the stage of static completion to full working order to specified requirements.
compensator	A control system in which the output is varied as a function of one or more input signals.
complete air-conditioning	*see* air-conditioning, complete.
compound compression	*see* compression, compound.
compound gland cock	*see* cock, compound gland.
compressibility factor	A component Z of the gas law deviation coefficient K, used in the calculation of the density of gases, in which the departure of a real from an ideal gas is significant.
compression, compound	Compression in several stages. In two stage compression the discharge of one compressor is connected with the suction of another, or compression by a single compressor having separate cylinders for each stage.
compression, single stage	Compression in one stage or step.
compressor	A mechanically operated component for compressing a gas into a smaller volume at a higher pressure.
compressor (air)	A machine to deliver air at high pressures.
compressor (refrigerant)	A mechanically operated component for compressing a specific refrigerant vapour drawing from an evaporating system and discharging to a condensing system.
compressor, centifugal	A non-positive displacement compressor that depends on centrifugal effect for increasing the pressure.
compressor, hermetic	A compressor in which the housing is permanently sealed, e.g. by welding or brazing, and that is not provided with means of access for servicing internal parts in the field.
compressor, reciprocating	A positive displacement compressor having a piston or pistons moving in a cylinder in a straight line but alternating in direction.

Term	Definition
compressor, rotary	A positive displacement compressor in which pressure is increased by rotating a displacement member in a cylinder.
compressor, screw	A positive displacement compressor in which pressure is increased by contra-rotating intermeshing screw form members.
compressor, semi-hermetic	A compressor in which the housing is sealed by one or more joints and is provided with means of access for servicing internal parts in the field.
compressor, turbo	*see* compressor, centrifugal.
compressor unit	A unit consisting of one or more power driven compressors and ancillary equipment, assembled and mounted on a common base.
condensate	The liquid obtained as a result of removing from a vapour the latent heat of evaporation it may contain; especially water condensed from steam.
condensate collector	Fitment in a steam line for removing condensed steam for recovery or discharge.
condensation	The precipitation of liquid from its vapour resulting from the lowering of temperature at constant pressure; especially the deposition of water from warm moist air onto a relatively cold surface.
condensation, interstitial	*see* interstitial condensation.
condenser	A heat exchanger in the form of a vessel or arrangement of tubing in which vapour is liquefied by the removal of heat.
condenser, air cooled	A condenser in which heat is surrendered directly to the surrounding atmosphere.
condenser, atmospheric	A condenser in which heat is surrendered directly to water flowing in a film over the external surface of horizontal tubes with natural circulation of air.
condenser, double bundle	A shell and tube condenser with separate tube circuits for separate secondary media.
condenser, double pipe	A condenser formed by two concentric pipes: coolant flows through the inner pipe and vapour through the annulus in contra flow.
condenser, evaporative	An atmospheric condenser in which air is positively circulated over the heat exchange surfaces by mechanical means.
condenser, shell-and-tube	A vessel containing a condensing surface in the form of plain or finned tubes.
condenser, water cooled	A condenser in which heat is surrendered directly to water.
condensing unit	A unit consisting of one or more power driven compressors, condensers, liquid receiver(s) (when required) and ancillary equipment assembled and mounted on a common base.
conductance, surface	*see* surface conductance.
conductance, thermal	*see* thermal conductance.
conduction	The transfer of heat from one part of a body to another part of the same body, or from one body to another in physical contact with it, without appreciable displacement of the particles of the body.
conductivity, thermal	*see* thermal conductivity.

Term	Definition
conduit core	The air path into an air terminal device.
connected load	*see* load, connected.
conservator	A refrigerator, usually of cabinet proportions and having top access, primarily intended for the storage.of pre-frozen commodities.
constant volume system	*see* system, constant volume.
contactor	A mechanical device for frequently making and breaking the load of an electrical circuit.
container (l.p. gas)	A pressure vessel for the storage of liquefied petroleum gas.
continuous heating	*see* heating, continuous.
control	To exert a restraining, governing or directing influence.
control, accelerated	A variation of two-position control to reduce the effective operating differential in room thermostats by a heating element.
control, derivative or rate action control	A control action in which the output signal is proportional to the rate of change of its input signal.
control, floating	A control action that moves the controlled device towards its maximum or minimum position with a neutral zone within which the controlled device may stop at any position.
control, integral	A control action in which the output signal changes at a rate proportional to its input signal.
control, optimum start	A control system applied to an intermittently operated heating plant in which the time of starting the plant is an automatically controlled variable.
control, proportional	The control action producing a controller output proportional to the magnitude of any deviation from the desired value of a measured variable condition.
control, sequence (or step control)	A controlled system in which the controller provides a sequence of predetermined actions.
control, slave	A control system in which one or more secondary controlled devices are made to repeat the movement and position of a master control device.
control, sound	see sound control.
control, two-position (or on-off control)	A central system that operates at predetermined values of deviation and can position the controlled device only in either a maximum or minimum position.
control, unison	A control system in which two or more controlled devices react simultaneously to the impulses received from one controller.
control, vibration	*see* vibration control.
control action	The kind of correction a controller makes for a deviation.
control button	*see* button, control.
control differential	The difference between the values of the controlled condition at which a controller using a two-positioncontrol action operates from one position to the other.
control point	The actual value of a controlled condition. (*See* desired value *and* set point.)

Term	Definition
control system	An arrangement of elements interconnected and interacting in such a way as to maintain or effect in a prescribed manner some specified condition.
controlled atmosphere store	A refrigerated storage room in which the composition of the atmosphere is modified.
controlled atmosphere store, ventilated	A controlled atmosphere store in which the carbon dioxide level only is controlled by ventilation.
controlled condition (or controlled variable)	The condition of a process which is the direct purpose of the control system to control.
controlled device	A device which reacts to a impulse received from a controller and regulates energy or fluid flow.
controlled temperature	*see* temperature, controlled.
controlled variable	*see* controlled condition.
controller	A device that receives and measures a variable condition and produces a suitable action or impulse for transmission to a controlled device.
controller, change pole	A controller designed to start a change pole motor at any of its various speeds and to change speed without interrupting the supply elsewhere.
controller, master	A controller that derives the energy for operation from the process it is controlling is subservient.
controller, programmed	A controller capable of providing a sequence of predetermined actions or impulses within a control system as a function of either time or some other variable.
controller, self-acting	A controller that derives the energy for operating from the process it is controlling.
controller, three term	A controller with proportional, integral and derivative action.
controller, two term	A controller with proportional action and either integral or derivative action.
convection	The transfer of heat from one point to another within a fluid by the mixing of one portion of fluid with another.
convection, forced	*see* forced convection.
convection heater	*see* convector.
convector	A unit for space heating by warm air obtained by way of a primary heating medium.
convector, air-conditioning	A terminal unit for space cooling using thermal forces.
convector, fan	A convector in which warmed air is projected into the heated space by a fan.
convector, natural	A convector in which warmed air is projected into the heated space by thermal forces.
convector heater	*see* heater, convection.
cooler	A heat exchanger in which the primary purpose is to lower the temperature of the warmer fluid.
cooler, after-	*see* after-cooler.
cooler, air	A cooler intended to reduce the temperature of air passed through it.

Term	Definition
cooler, Baudelot	A liquid cooler in which heat is removed from the liquid which flows in film form over the external surface of horizontal tubes through which refrigerant is circulated.
cooler, brine	A cooler in which brine and a refrigerant are subject to thermal exchange.
cooler, water	Any type of unit in which water is cooled by refrigeration.
cooler battery, air	*see* battery, air cooler.
cooling, district	The distribution of a cooling medium from a central plant or plants to a number of different users.
cooling, evaporative	*see* evaporative cooling.
cooling, sensible	*see* sensible cooling.
cooling, spot	Cooling of a particular area within a room or system.
cooling, thermo-electric	*see* thermo-electric cooling.
cooling coil	*see* coil, cooling.
cooling curve	A curve showing decrease of temperature with time.
cooling grid	A heat exchanger comprising piping or tubing formed into a number of parallel or near parallel passes usually lying in the same plane.
cooling load	*see* load, cooling.
cooling power	The maximum rate of heat removal from a cooling plant operating under normal conditions.
cooling tower	A device for lowering the temperature of water by evaporative cooling in which the water is showered into a space through which atmospheric air circulates.
corner firing	An arrangement of burners by which the flame mass is given rotary motion about a vertical axis towards the furnace exit.
corner tube boiler	*see* boiler, corner tube.
corrected effective temperature	*see* temperature, corrected effective.
cost-in-use	Operating costs.
counter flow heat exchanger	*see* heat exchanger, counter flow.
cowl	A cover, frequently louvered ane either fixed or revolving, fitted to the top of a chimney to prevent downdraught.
crackage	Total area of gaps around doors and windows through which ventilating air passes.
critical pressure	The pressure above which the liquid and vapur phases of a substance cannot exist together in equilibrium.
critical temperature	The temperature above which the liquid and vapour phases of a substance cannot exist together in equilibrium.
cross flow fan	*see* fan, cross flow.
cross flow heat exchanger	*see* heat exchanger, cross flow.
cross-tube boiler	*see* boiler, vertical, cross-tube.
cross ventilation	Ventilation provided by circulation of air from one side of a room to the other.
crown valve	*see* valve, crown.
cryohydrate	A frozen eutectic aqueous solution.

Term	Definition
cut-off	The point in an engine cycle at which steam supply to the cylinder is stopped.
cyclone dust collector	*see* dust collector, cyclone.
cyclone furnace	A cylindrical water-cooled furnace into which pulverized or finely crushed fuel and air are introduced in such a way that high intensity combustion takes place, a substantial part of the ash being discharged in a molten state.
cylinder (hot water)	Closed vessel in which domestic hot water is stored.
cylinder, direct	Cylinder in which the stored water circulated directly to and from the boiler.
cylinder, indirect	Cylinder with an internal heat exchanger which is connected to a boiler.
daily service tank	Small vessel within a working room associated with short term supply of fuel.
damper	A blade or set of blades that can be moved within, or slid into, a duct in order to control fluid flow.
damper, butterfly	a) A damper consisting of a plate turning on a diametral axis inside a duct. b) A pair of flaps hinged to a common diametral spindle and permitting flow in one direction only.
damper, face and bypass	An assembly of adjustable baffles arranged in such a way that the face of a coil or battery can be blanked off partially or fully, and some, or all, of the air blown towards it can be diverted round the battery or coil according to the position of the baffles.
damper, fire	A specially constructed damper that shuts off a duct to prevent the passage of products of conflagration.
damper, hit and miss	A damper comprising two plates, one fixed and the other able to slide over it, each having identical orifices in the form of parallel slots so that the proportion of each slot open to fluid flow may be varied by operation of the sliding plate.
damper, iris	A damper having a number of sectorized blades opening and closing to produce an orifice concentric with the axis of the duct.
damper, manual	A damper adjusted by hand, i.e. without the use of a power cylinder, often single leaf.
damper, multiple leaf	A number of inter-connected rectangular blades mounted on spindles that are supported in outer bearings.
damper, opposed blade	A multileaf damper in which adjacent blades rotate in opposite directions.
damper, single leaf	A single blade pivoted either at the centre or at one end.
damper, slide	A single rectangular blade, part of which is moved into the duct by a required amount and mounted perpendicularly to the air flow.
damper, splitter	A single blade mounted in a duct with the object of dividing a flow into two separate streams often in a required proportion.
damping	The diminution of the amplitude of an oscillation.
dark smoke	*see* smoke, dark.

Term	Definition
deadleg	A length of pipe not forming part of a circulation system that has a discharge outlet at the end remote from its connection to the pipework system.
de-aeration	a) A process in water treatment for the removal of air. b) Natural removal of dissolved gases from water as it is heated.
decibel	A unit for expressing the ratio of two values of acoustic power, equal to ten times the common logarithm of the ratio.
declared efficiency	*see* efficiency, declared.
defrosting	The removal of frost or ice from the surface of a cooling element.
defrosting, hot gas	*see* hot gas defrosting.
degree day	The number of degrees of temperature difference on any one day between a given base temperature and the mean day outside temperature.
dehumidification	The reduction of the amount of water vapour contained in a space or an air stream.
dehumidifier	A device designed to take up moisture from an air stream passed through or round it.
dehydrator	*see* drier (dehydrator).
de-mineralization	A process in water treatment for the removal of minerals using ion exchange.
demand	The total simultaneous outputs required from a system at its points of use.
demand pattern	The nature of the changes in demand with time.
demand peak (demand, maximum simultaneous)	The maximum value of demand during normal operation and use.
demand position	Demand at a particular time.
density, standard	The density at defined "standard" reference conditions used in air and gas flow calculations.
deodorization	The ventilation or filtration processes by which the components of a volume of air that are responsible for odours are removed.
derivative control	*see* control, derivative (or rate action control).
desiccant	A substance with high hygroscopic property.
design	A graphical representation of a system giving measurements and quantities required for a complete description.
design conditions	Those measurements and quantities selected as the basis for the design of a system.
design criteria	The optimum values, qualities and requirements of components specific to a particular design.
design heat gain	Heat gain to a building, estimated from considerations of the structure, the intended working temperatures, ventilation rates, occupancy and other sources.
design heat loss	Heat loss from a building, estimated from considerations of the structure, and the intended working temperature and ventilation rates.
desired value	The specified value of the controlled condition.
de-superheater	A heat exchanger for removing all or part of the superheat.

Term	Definition
detector (sensor)	The part of a measuring device that provides the initial response to changes in the measured variable.
deviation	The difference between the desired value and the actual value (control point) of the controlled condition.
dewpoint	*see* temperature, dewpoint.
dewpoint, acid	*see* acid dewpoint.
dewpoint, apparatus	*see* apparatus dewpoint.
dewpoint temperature	*see* temperature, dewpoint.
de-zincification	The loss of zinc from an alloy in acidic water or in alkaline water of high chloride content.
diaphragm valve	*see* valve, diaphragm.
differential pressure	The difference between pressures measured at two points or levels in a fluid.
differential pressure controller	An instrument capable of maintaining a desired pressure difference between two points in a system irrespective of the load on the system.
differential pressure gauge	*see* gauge, differential pressure.
diffuse solar radiation	*see* solar radiation, diffuse (indirect).
diffuser	a) The duct or space in which a fluid is decelerated with a rise in pressure. b) *See* air diffuser.
diffusion	*see* air diffusion.
diffusivity, thermal	*see* thermal diffusivity.
dipstick	*see* liquid level indicator, dipstick.
direct cylinder	*see* cylinder, direct.
direct expansion coil	*see* coil, direct expansion.
direct expansion refrigerating system	*see* refrigerating system, direct expansion.
direct fanned warm air heating unit	*see* heating unit, fan-assisted warm air, direct.
direct field	That part of the sound field of a source wherein the effects of the boundaries of the medium can be neglected.
direct fired heater	A heat generator where the heat from combustion is emitted directly to the medium to be heated.
direct hot water supply	*see* hot water supply, direct.
direct solar radiation	*see* solar radiation, direct.
directional fixed grille	*see* grille, fixed, directional.
directivity	The extent to which a directional source or receiver concentrates its radiation or response in specified directions.
directivity factor	a) Of a sound source, at a specified frequency. The ratio of the intensity of the radiated sound, at any remote point on a reference axis, to the average for all directions in space of the intensity of the sound at the same distance from the effective centre of the source. NOTE The point of observation must be sufficiently remote for the measurement of directivity factor to be independent of distance.

Term	Definition
	b) Of a microphone, at a specified frequency. The square of the ratio of the freefield sensitivity in a reference direction to the random incidence sensitivity.
discharge pressure	*see* pressure, discharge.
discharge valve	*see* valve, discharge.
distribution	The orderly dispersal of an energy medium or fluid between sources and points of use.
distributor, refrigerant	A device used in conjunction with a thermostatic expansion valve for dividing the flow of liquid refrigerant to ensure equal distribution to each of two or more parallel paths of an evaporator.
district cooling	*see* cooling, district.
district heating	*see* heating, district.
diversity factor	The ratio between the connected and the actual load over a specified period of time.
diverter valve	*see* valve, diverter.
domestic boiler	*see* boiler, domestic.
domestic heating	*see* heating, domestic.
domestic heating appliance	Appliance for space heating or hot water supply with a rated output not exceeding 45 kW.
domestic hot water	Hot water intended for hygienic or culinary use.
double beat valve	*see* valve, double beat.
double bundle condenser	*see* condenser, double bundle.
double disc valve	*see* valve, double disc.
double inlet fan	*see* fan, double inlet.
double pipe condenser	*see* condenser, double pipe.
double regulating valve	*see* valve, double regulating.
down draught	a) Movement of gases in a flue in a direction opposite to the normal flow. b) Downward convective movement of air at cold surfaces of an enclosure.
downfeed	A pipe carrying water to a boiler, reservoir or drain.
down service	A pipe conveying water from high level storage to the plant or to the system of usage points.
downstream tapping	*see* tapping, downstream.
drain, casing	*see* casing drain.
drain cock	*see* valve, drain.
drain valve	*see* valve, drain.
draught	a) Excessive air movement in an occupied enclosure, causing discomfort. b) A difference in pressure between a furnace and the atmosphere that causes air for combustion to flow into the furnace and/or the products of combustion to leave the furnace.

Term	Definition
draught, balanced	In a furnace a combination of forced draught and induced or natural draught, to produce a pressure condition approximating to that of the atmosphere.
draught, forced	Combustion air introduced by mechanical means.
draught, induced	A draught produced by exhausting the products of combustion by mechanical means.
draught, natural	The aeromotive force produced in a flue by the difference between the density of the gases within the flue and the density of the ambient air.
draught gauge	*see* gauge, draught.
draught stabilizer	A device for fitting to a chimney flue or flue pipe designed to admit air via a balanced flap, the opening of which varies automatically in response to changes in draught within the flue.
draw-off cock	*see* valve, draw-off.
draw-off point	Tap or outlet from which piped services are delivered for use.
draw-off valve	*see* valve, draw-off.
drier (dehydrator)	A device for the removal of undesired water or water vapour.
drive, direct	A drive in which the motor shaft is concentric with, and coupled direct to, the driven shaft.
drive, vee belt	A drive in which the motor shaft is parallel to the driven shaft with drive by one or more vee belts between pulleys on each shaft.
drop (or rise)	In ventilation the variation in height, normal to the floor, of an air stream between the grille and the end of the throw.
dry air	Air containing no water vapour.
dry air filter	*see* air filter, dry.
dry bulb temperature	*see* temperature, dry bulb.
dry bulb thermometer	*see* thermometer, dry bulb.
dry compression refrigerating system	*see* refrigerating system, dry compression.
dry expansion coil	*see* coil, dry expansion.
dry ice	Solid carbon dioxide.
dry resultant temperature	*see* temperature, dry resultant.
dry return	*see* return, dry.
dry steam	*see* steam, dry saturated.
dry steam coal	*see* coal, dry steam.
dryback economic boiler	*see* boiler, economic, dryback.
dryness fraction of steam	*see* steam, dryness fraction of.
dual duct box	A device for connecting to two ducts, one containing warm air and the other containing cool air. The device mixes air from the two ducts to give the desired mixed air temperature at the exit.
dual duct system	*see* system, dual duct.
dual fuel boiler	*see* boiler, dual fuel.
duct	a) An enclosure of any cross-sectional shape, but generally circular or rectangular, through which air can flow.

Term	Definition
	b) A passage through which services such as water pipes, electric cables or air ducts can be led through a building.
duct, spur (duct, branch)	A length of duct leading from a trunk duct.
duct, stub	A short length of pipe connected directly to a main supply and projecting into an enclosure.
duct, trunk	The principal duct supplying air to a building or enclosure.
duct sizing	The determination of the geometry and cross-sectional sizes of air ducts having regard to pressure drop, air velocity and noise criteria.
duct sizing, equal friction method	A method of apportioning flows in ducts of different size so that the friction energy losses are constant.
duct sizing, static regain method	A method of duct sizing and design that enables reduction in air velocity to be accompanied by an optimum regain of static pressure.
dust sizing, velocity reduction method	The sizing of a duct run so that the duct geometry is compatible with the consistent reduction in air velocities and tolerable energy losses.
ductwork	A system of ducts for distribution or extraction of air.
dump valve	*see* valve, dump.
duplex gauge	*see* gauge, duplex.
dust, flue	Dust deposited in the flues or gas passages of a boiler or flue and chimney system.
dust collector	A mechanical or electromagnetic means of extracting and collecting dust.
dust collector, cellular or multi-cell	A mechanical collector consisting of a number of primary cells of circular cross section and fitted with guide vanes.
dust collector, cyclone	A mechanical collector comprising an upper chamber of circular or near-circular cross section mounted above a conical chamber in which centrifugal force is utilized to separate particulate matter entrained in the gas or air entering the collector.
dust collector, mechanical	A dust collector that makes use of the principles of settling under gravity and the inertia of moving particles.
dust collector, scroll type	A mechanical collector that utilizes a scroll or volute shaped chamber as a primary separator and a small cyclone as a secondary collector.
dust extract system	*see* system, dust extract.
dust holding capacity	*see* air filter dust holding capacity.
dust spot test	Optical density test used to evaluate high efficiency air cleaners.
dutch oven furnace	A refractory-lined furnace external to a boiler, usually fired with waste material.
dynamic losses	The reduction in velocity head during flow.
early morning boost	A method of preheating a central heating system after a night-time set-back.
earth terminal	*see* terminal, earth.
economic boiler	*see* boiler, economic.
economizer	An apparatus comprising water tubes set in the path of the products of combustion to preheat the feed water for a boiler.

Term	Definition
economy operating schedule	A time-related variation of the set points of a control system designed to produce energy conservation.
effective area	The area of a chimney section that enables maximum flow rate to be discharged with acceptable conditions of energy losses and efflux velocity.
effective temperature	*see* temperature, effective.
efficiency	The ratio of the energy output to the energy input of a process or machine.
efficiency, air filter	*see* air filter efficiency.
efficiency, boiler	*see* boiler efficiency.
efficiency, declared	The expected efficiency of a machine or system stated by the manufacturer.
efficiency, saturation of air washer	*see* air washer, saturation efficiency of.
efficiency, thermal	The efficiency of heat generation or utilization in a thermal process.
efficiency, volumetric	The ratio of the volume of gas actually discharged referred to suction pressure and temperature, to the swept volume of a positive displacement compressor.
efflux velocity	*see* velocity, efflux.
ejector	A device for exhausting a fluid by entraining it in a high velocity jet.
ejector refrigerating system	*see* refrigerating system, ejector.
elbow	A pipe or duct fitting that abruptly changes the direction of flow through 90° or other specified angle.
electric fire	An electric heater with visible elements behind a protective guard which, when operated at their rated input, reach a luminous radiant state.
electric heating system	*see* heating system, electric.
electric motor	*see* motor, electric.
electrical energy	*see* energy, electrical.
electrode boiler	*see* boiler, electrode.
electrostatic air filter	*see* air filter, electrostatic.
electrostatic precipitator	*see* air filter, electrostatic.
element, fire-bar	An electric heating element in which an extended helix of resistance wire is supported within a former.
element, infra-red	A hot body at red or yellow heat that propagates heat energy the wavelength of which lies in the infra-red band of the spectrum.
element, rod	An electric heating element in which a non-coiled resistance wire is wound round a rod or tubular former.
eliminator plate	Means for entrapping droplets of water carried over in air leaving an air washer or air cooler.
embedded panel	A low-temperature heat emitter embedded in a ceiling, wall or floor.
emergency control button	*see* button, control, emergency.
emissivity	Ratio of the heat radiated by a surface to that which would be radiated by an equivalent black body at the same temperature.

Term	Definition
emulsifying oil burner	*see* oil burner, emulsifying.
energy	The capacity for doing work.
energy, chemical	Energy released or absorbed by chemical reaction.
energy, electrical	Energy in the form of an electric current or an electostatic charge.
energy, geothermal	Energy resulting from heat in the earth's crust.
energy, gross	The actual energy required for a function or process.
energy, kinetic	Energy due to motion.
energy, net	The minimum theoretical energy required for a function or process.
energy, new	Primary or secondary energy; energy that does not originate in an energy reclamation or recovery process.
energy, non-depletive	Energy derived from a natural phenomenon such as wind, sun or tide, that can be considered constant and continuous when averaged over a long time period.
energy, nuclear	Energy obtained by nuclear reaction.
energy, potential	Energy due to position.
energy, primary	Any form of energy as existing in its natural state.
energy, radiant	Energy in the form of electromagnetic radiation.
energy, reclaimed	Waste energy that is used for another purpose.
energy, recovered	Reclaimed energy that is transferred for the purpose of performing a useful function elsewhere or stored for use at a later time.
energy, secondary	Primary energy that has been converted into a form or state that facilitates its distribution and use.
energy, solar	Radiant energy from the sun.
energy, thermal	Energy in the form of heat.
energy, tidal	Energy obtained from tidal movement of the sea.
energy, useful	Energy in a desired form.
energy, waste	Energy in a degraded form after serving some useful purpose.
energy, wind	Energy obtained from the action of wind.
energy audit	The determination of actual energy use in each part of an installation or process.
energy budget	The energy allowance for building or process purposes.
energy conservation	The means by which a minimum amount of primary energy is used while achieving acceptable environmental conditions.
energy loss	Energy that cannot usefully be used.
energy management	The orderly control of energy use.
energy requirement	The summation of the amounts of energy used in a building or process.
energy target	The desired energy demand of a building or process.
engineering services	*see* building services.
engineering system	A combination of systems associated with the built environment or with a process.

Term	Definition
enthalpy	The sum of sensible and latent heat per unit mass above an arbitrary datum.
entrainment	The acceleration of ambient air at the boundary of a moving air stream or jet.
envelope	The curve that touches every one of a family of curves.
environment	The physical conditions in which human activity occurs.
environmental temperature	*see* temperature, environmental.
equal friction method	*see* duct sizing, equal friction method.
equalizer (unloader)	A device that permits equalization of pressure between the suction and discharge of a compressor.
equalizing damper	A damper used to maintain a particular ratio of air flow to twin ducts.
equalizing pressure	*see* pressure, equalizing.
equilibrium concentration	The amount expressed as a mass or volume of a particular constituent in equilibrium in a given enclosure.
equilibrium pressure	*see* pressure, equilibrium.
equilibrium temperature	*see* temperature, equilibrium.
equipment anchor	*see* anchor, equipment.
equivalent full-load operating hours	The number of hours a system would operate at full output to produce or extract the same quantity of heat as is required during a heating or cooling season.
equivalent length	The length of straight pipe (or duct) which, for the same flow rate, has the same pressure drop as a fitting in the system.
equivalent temperature	*see* temperature, equivalent.
eupathoscope	An instrument for measuring equivalent temperature.
eutectic mixture	A mixture composed in such proportions as to freeze at the lowest possible temperature for the materials used.
evaporative condenser	*see* condenser, evaporative.
evaporative cooling	The process of evaporating part of a liquid by supplying the necessary latent heat from the sensible heat of the main bulk of the liquid which is thus cooled.
evaporative heat meter	*see* meter, heat, evaporative.
evaporative humidifier	*see* humidifer, evaporative.
evaporator, refrigerant	A heat exchanger in which liquid refrigerant is vaporized by absorbing heat from the substance to be cooled.
excess air	Air supplied to a combustion process additional to that theoretically required by the chemical reaction.
exhaust air	*see* air, exhaust.
exhaust hood	A hood associated with an extract system into which contaminated air and entrained solid particles are accelerated.
exhaust intake	An enclosure immediately upstream of a pipe or orifice into which ventilation air is drawn.
exhaust system	*see* system, exhaust.
exhaust ventilation	*see* ventilation, exhaust.
expansion bellows	*see* bellows, expansion.

Term	Definition
expansion joint	A pipeline joint to allow for thermal linear expansion.
expansion loop	A pipeline configuration to allow for thermal linear expansion.
expansion tank	A cistern for accommodating the thermal expansion of water.
expansion valve	*see* valve, expansion.
expansion vessel	a) A closed vessel, permanently installed in the low pressure side of a refrigerating system, to contain refrigerant vapour. b) A closed vessel for accommodating the thermal expansion of water in a pressurized hot water heating system.
expansion vessel, membrane	An expansion vessel in which the expansion of fluid compresses a membrance against a pre-pressurized volume of gas.
exposure	The position of a building, or a room within a building relative to its environment as it affects the properties of the building such as thermal conductivity, air infiltration, noise levels, solar gain, etc.
exposure, normal	Degree of exposure of a building corresponding to most suburban and country premises, and between the fourth and eighth floors in city centres.
exposure, severe	Degree of exposure of a building corresponding to buildings on coast or hill sites.
exposure, sheltered	Degree of exposure of a building corresponding to buildings up to the third floor in city centres.
exterior zone	*see* zone, exterior.
external environmental temperature	*see* temperature, sol-air.
external temperature	*see* temperature, external.
extract air	*see* air, extract.
extract ventilation	*see* ventilation, extract.
fabric air filter	*see* air filter, fabric.
face and bypass damper	*see* damper, face and bypass.
face velocity	*see* velocity, face.
fail safe	A requirement of plant or equipment which, under abnormal operating conditions, will prevent potentially hazardous conditions arising.
fan	A rotary machine for propelling air or gas.
fan, axial flow	A fan having a cylindrical casing in which the air enters and leaves the impeller in a direction substantially parallel to the common axis of the casing and the impeller.
fan, axial flow, adjustable pitch	An axial flow fan in which the pitch angle of the blades can be altered manually with the fan stopped.
fan, axial flow, fixed pitch	An axial flow fan the blades of which are not provided with means of angular adjustment.
fan, axial flow, variable pitch	An axial flow fan in which the pitch angle of the blades can be adjusted with the fan running.
fan, backward curve	A centrifugal fan having the convex side of its curved blades facing the direction of rotation.

Term	Definition
fan, bifurcated	An axial fan in which the fluid flow passes through two ducts on both sides of the motor or drive and reformed into a single duct.
fan, centrifugal	A fan in which the air leaves the impeller in a direction substantially tangential to the periphery of the impeller.
fan, cross flow	A fan in which the air is caused to flow through the impeller in a direction substantially at right angles to its axis both entering and leaving the impeller at its periphery.
fan, double inlet	A centrifugal fan having inlets on both sides of the fan casing.
fan, forward curve	A centrifugal fan having the concave side of its curved blades facing the direction of rotation.
fan, mixed flow	A fan in which the fluid path through the impeller is intermediate between the centrifugal and axial flow types.
fan, multi-stage	A fan having two or more impellers working in series.
fan, paddle blade	A radial fan having flat blades carried on arms extending from a central hub.
fan, propeller	A fan having an impeller, other than of the centrifugal type, the flow into and out of the impeller not being confined by a casing.
fan, radial blade	A centrifugal fan having flat radial blades.
fan, single inlet	A centrifugal fan having an inlet on one side only of the casing.
fan, tangential flow	*see* fan, cross flow.
fan air power, static	The air power (total) minus the nominal kinetic energy per unit time at the outlet.
fan air power, total	That part of the energy per unit time imparted by the fan to the air in increasing its total pressure from that at the inlet to that at the outlet.
fan-assisted ducted warm air heater	Warm air heater which distributes the air throughout a building by means of ducts, movement of air being assisted by a fan.
fan-assisted warm air heating unit	*see* heating unit, fan-assisted warm air.
fan coil unit	An assembly comprising a heat exchanger(s) for cooling and/or heating and a fan all contained in a housing.
fan convector	*see* convector, fan.
fan duty, static	The inlet volume at a specified density dealt with by a fan at a stated fan static pressure.
fan duty, total	The inlet volume at a specified density dealt with by a fan at a stated fan total pressure.
fan efficiency, static	The ratio of the air power (static) to the impeller power.
fan efficiency, total	The ratio of the air power (total) to the impeller power.
fan heater	*see* heater, fan.
fan impeller	That part of a fan which, by its rotation, imparts movement to the air.
fan impeller, backward aerofoil	An impeller of backward curved form having blades of aerofoil section.
fan inlet box	A chamber on the inlet side of a centrifugal fan.
fan inlet volume	The air or gas volume per unit time entering the fan.

Term	Definition
fan performance curve	A curve showing, at specified speed and air density, the relationship between fan static or total pressure and the air volume flow rate. The fan power and efficiency may also be shown.
fan pressure, static	The difference between the fan total pressure and the fan velocity pressure.
fan pressure, total	The algebraic difference between the mean total pressure at the fan outlet and the mean total pressure at the fan inlet.
fan pressure, velocity	The velocity pressure corresponding to the average velocity at the fan outlet based on the total outlet area without any deductions for motors, fairings, or other bodies.
fan shaft power	The energy input, per unit time, to the fan shaft(s) including the power absorbed by such parts of the transmission system as constitute an integral part of the fan.
fan static duty	*see* fan duty, static.
fan static efficiency	*see* fan efficiency, static.
fan static pressure	*see* fan pressure, static.
fan total duty	*see* fan duty, total.
fan total efficiency	*see* fan efficiency, total.
fan total pressure	*see* fan pressure, total.
fan velocity pressure	*see* fan pressure, velocity.
feed and expansion tank	A cistern for accommodating the thermal expansion of water in a central heating system which also acts as a feed cistern.
feed-check valve	*see* valve, feed-check.
feed water	*see* water, feed.
filming amines	*see* amines, filming.
filter cell	An individual element or orifice in a filter screen.
filter screen	A supporting grillage in which filter cells are mounted.
final air filter resistance	*see* air filter resistance, final.
finned surface	Fins on a heat exchanger transfer surface to increase the surface area.
fire-bar element	*see* element, fire-bar.
fire, electric	*see* electric fire.
fire, gas	*see* gas fire.
fire, open	*see* open fire.
fire valve	*see* valve, fire.
firing	The process of adding fuel to a boiler furnace.
firing equipment	The mechanism by which fuel is supplied to, and caused to burn in, a furnace.
fitting (duct or pipe)	In a run of ductwork or pipework, any bend, reducer, tee, off-take or other section other than a straight length of pipe or duct.
fitting, capillary	A pipe fitting of a type to form a capillary joint.
fitting, compression	A pipe fitting of a type to form a compression joint.

Term	Definition
fitting, flanged	A pipe fitting with integral flanges to enable it to be connected by flanged joints.
fitting, m and f	A screwed pipe fitting with a male thread on one end and a female thread on the other.
fitting, reducing	A pipe or duct fitting in which the outlet size is smaller than the inlet or vice versa.
fitting, screwed	A pipe fitting with screwed ends to enable it to be connected by screwed joints.
fitting, weldable	A pipe fitting of a type to form a welded joint.
fixed grate	*see* grate, fixed.
fixed grille	*see* grille, fixed, directional.
fixed pitch axial flow fan	*see* fan, axial flow, fixed pitch.
flange (duct or pipe)	A projecting lip on the end of a duct or pipe or a duct or pipe fitting that can be bolted to a corresponding flange on an adjoining section.
flash gas	That portion of the liquid refrigerant which is vaporized on sudden reduction of pressure.
flash margin	A safety margin applied to pressurized heating systems, being the minimum amount by which the actual water temperature is below the boiling point at the same pressure.
flash point	The temperature at which a liquid gives off a flammable vapour.
flash steam	*see* steam, flash.
flash vessel	*see* accumulator, refrigerant.
flat rate charge	A means of cost apportionment based on areas of accommodation or installed capacity not varying with actual usage.
float gauge	*see* gauge, float.
float switch	*see* switch, float.
float (steam) trap	*see* steam trap, float.
float valve	*see* valve, float.
floating control	*see* control, floating.
floor plate	A flat disc, often split, to cover the point of entry of a pipe into a floor or ceiling.
flow	The linear motion of a fluid.
flow, laminar (streamline or viscous)	Flow in which mixing between flow strata (laminae) does not occur.
flow, transition	The unstable region of flow that occurs when there is a change from a laminar to a turbulent flow regime.
flow, turbulent	Flow that is characterized by a forward motion accompanied by irregular eddies associated with momentum transfer between the fluid strata.
flow connection	*see* tapping, flow.
flow equalizer	A component intended to even out the velocity in a section and/or to decrease the relative magnitude of fluctuations characteristic of the flow and/or reduce the magnitude of a possible swirl of the fluid flow.

Term	Definition
flow meter	*see* meter, flow.
flow rate controller	A device that adjusts the rate of flow or fluid or granular materials to a predetermined fixed or variable rate.
flow regulating valve	*see* valve, flow regulating.
flow tapping	*see* tapping, flow.
flow temperature	*see* temperature, flow.
flue	A passage through which products of combustion pass.
flue, balanced	*see* a) balanced flue appliance; and b) boiler, balanced flue.
flue gas	Products of combustion and excess air.
flue liner	An inner layer of fire and corrosion-resistant material to protect a flue from the effects of heat and corrosive gases.
flue loss	Heat lost in the flue gas from a combustion appliance.
flue loss method	A method of assessing the thermal efficiency of an appliance by determining the flue gas and other losses and deducting the sum of these from the total heat input.
flued heater	*see* heater, flued.
flueless heater	*see* heater, flueless.
fluid	Liquid, gas or vapour.
fluidized bed	A bed of solid particles through which a fluid is forced so that the bed assumes properties similar to a fluid.
fluidized bed freezer	*see* freezer, fluidized bed.
fly ash	A fine ash resulting from the combustion of pulverized fuel.
foot valve	*see* valve, foot.
forced circulation	The process whereby fluid(s) are mechanically circulated over the heating surface(s) of a heat exchanger.
forced circulation boiler	*see* boiler, forced circulation.
forced convection	Fluid motion created by a fan or pump to enhance heat transference.
forced draught	*see* draught, forced.
forward curve fan	*see* fan, forward curve.
fossil fuel	*see* fuel, fossil.
four pipe system	*see* system, four pipe.
four-way mixing valve	*see* valve, mixing, four-way.
free area	The total aperture area of a grille.
free area rate	The air volume flow rate through a grille based on the free area.
free area velocity	*see* velocity, free area.
freezer	A refrigerated chamber maintained substantially colder than the freezing point temperature of its contents.
freezer, air blast	A freezer in which freezing of the product is accomplished by rapidly circulating cold air.
freezer, fluidized bed	An air blast freezer in which the direction of air blast is upwards and is of sufficient velocity to cause the contents within the freezer to float.

Term	Definition
freezer, liquid immersion	A refrigerated liquid bath designed for rapidly freezing substances by immersion in a low temperature liquid.
freezer, multiplate	An assembly of refrigerated plates arranged in an insulated enclosure designed for rapidly freezing substances by direct contact.
fresh air	*see* air, fresh.
friction factor	A relationship between wall roughness, Reynolds number and pressure drop per unit length of pipe or duct.
friction loss	The loss of pressure energy in a duct or pipe associated with Reynolds number, boundary layer growth and velocity distribution.
frictional resistance	The resistance to fluid flow as a result of friction between the fluid and the solid surface which it flows past.
frozen food	A food that has been subjected to a freezing process specially designed to preserve the wholesomeness and quality of the product.
fuel	Matter that can be used to produce heat by combustion or nuclear reaction.
fuel, fossil	Combustible matter derived from fossilization.
fuel handling plant	The means by which fuel is made available to the firing equipment.
fuel hopper	*see* hopper, fuel.
fuel oil	Heavier liquid hydrocarbon products used as a fuel.
full air-conditioning	*see* air-conditioning, full.
full central heating	*see* heating, central, full.
full heating	*see* heating, full.
fully adjustable air diffuser	*see* air diffuser, fully adjustable.
fume cupboard	A work chamber, having mechanical ventilation, for enabling work involving noxious, toxic or hazardous fumes to be done safely.
fumes	Airborne gases or particles, less than a micron in size, arising from condensation of vapours or from chemical reaction.
furnace	The chamber in which the primary combustion of fuel takes place.
furnace, cyclone	*see* cyclone furnace.
furnace, dry bottom	A furnace arranged for the removal of the ash in a solid state.
furnace, slag-tap	A furnace in which the ash is extracted as liquid slag.
furnace tube	A cylindrical tube of relatively large cross section, within and part of a boiler, in which primary combustion occurs.
fusible link	A safety device having a low temperature melting point release mechanism.
fusible link valve	*see* valve, fusible link.
fusible plug	A safety device having a low temperature melting point element to release pressure at a predetermined temperature.

Term	Definition
gas	a) A state of matter in which the molecules move freely and cause it to occupy the total volume of any vessel in which it may be contained. b) Fuel for domestic or industrial use produced in gaseous form from coal or from natural gas fields.
gas, flash	*see* flash gas.
gas, liquefied petroleum	A light hydrocarbon gas.
gas, manufactured	Gas fuel made from other fuels.
gas, natural	Gas, consisting mainly of methane, occurring naturally in underground accumulations.
gas, town	Manufactured gas normally supplied to the public by a utility undertaking in accordance with statutory requirements.
gas, tracer	*see* tracer gas.
gas boiler	*see* boiler, gas
gas fire	A flued appliance burning gas for heating one room, mainly by the emission of radiant heat.
gas fire, radiant convector	A gas fire so designed that the radiant heat is supplemented by convected heat.
gas heating system	*see* heating system, gas.
gasifying oil burner	*see* oil burner, gasifying.
gasket	A semi-rigid or flexible sealing material fitted between two mating surfaces.
gate valve	*see* valve, gate.
gauge, altitude	A pressure gauge on which the force per unit area is figured in terms of that force exerted by a height of a column of named liquid.
gauge, bourdon	A pressure gauge in which the sensing element consists of a flattened tube closed at one end and coiled with the axis parallel to the major axis of the flattened tube. A physical displacement occurs between the ends of the tube when the difference of pressure within and without the tube is changed.
gauge, compound	A pressure gauge in which the range of pressure measured extends above and below atmospheric pressure.
gauge, differential pressure	A pressure gauge that measures the pressure difference between two entry ports.
gauge, draught	A pressure gauge for measuring the difference in pressure between that of the atmosphere and that inside a chimney or flue.
gauge, duplex	A pair of gauges mounted in a single casing, each with an entry port with separate or combined scales.
gauge, float	A gauge for the measurement of the position of free surface level that uses float buoyancy.
gauge, float (cable operated)	A float gauge in which the float is connected to an indicator by cable, chain, cord, or tape.
gauge, float (magnetically operated)	A float gauge in which the position of the float is transmitted from inside the tank by a magnetic device to an indicator outside the tank.

Term	Definition
gauge, pressure	A device that gives an indication of difference of force per unit area as between that of atmosphere and that at an entry port to the device.
gauge, tank contents	A device that indicates contents of a particular tank in volumetric measure.
gauge, tank contents, bubbler type	A gauge having a pipe projecting downward into a liquid. The pressure required to cause air or an inert gas to bubble from the lower end of the pipe serves to measure the tank contents.
gauge, tank contents, dipstick	A gauge in which tank contents are shown by a dipstick liquid level indicator.
gauge, tank contents, float operated cable	A gauge in which tank contents are shown by a float-operated cable liquid level indicator.
gauge, tank contents, hydrostatic	A gauge in which tank contents are shown by a hydrostatically operated liquid level indicator.
gauge, tank contents, magnetically operated float	A gauge in which tank contents are shown by a magnetically operated float liquid level indicator.
gauge, tank contents, sight tube	A gauge in which tank contents are inferred by a sight tube liquid level indicator.
gauge, vacuum	A gauge for operation in the pressure range from that of atmosphere to that of a vacuum.
gear pump	*see* pump, gear.
generated noise level	A measure of noise produced by an installation in operation.
generator (refrigeration)	In an absorption system, a still by means of which refrigerant is driven from its solution by the application of heat.
geothermal energy	*see* energy, geothermal.
gland cock	*see* cock, gland.
globe temperature	*see* temperature, globe.
globe thermometer	*see* thermometer, globe.
globe valve	*see* valve, globe.
governor valve	*see* valve, governor.
graduated density air filter	*see* air filter, graduated density.
grate	A support for a bed for solid fuel, generally consisting of fire bars between which the air for combustion passes.
grate, combination	see combination grate.
grate, fixed	A grate in which the fire bars are stationary at all times.
grate, moving	A grate in which longitudinal movement of the fire bars causes the fuel to travel along its length.
grate, rocking	A grate in which the parts or sections are rocked mechanically or by hand.
grate, rotary	A grate in which a partially rotary movement of the fire bars causes the ashes to fall into the ashpit.
grate, vibrating	An inclined grate in which the fire bars are shaken to compact the fuel bed and to move the ash into the ashpit.
gravimetric test	*see* air filter test, gravimetric.
gravity circulation	The movement of a liquid through a closed circuit induced by a difference in density.

Term	Definition
gravity feed boiler	*see* boiler, gravity feed.
gravity feed stoker	*see* stoker, gravity feed.
grease filter	*see* air filter, grease.
grid, cooling	*see* cooling grid.
grille	A mesh or lattice entry or termination fitted to a duct.
grille, adjustable	A grille with adjustable louvres.
grille, fixed, directional	A grille with fixed louvres.
grit	Particles larger than 100 micrometres.
grit arrestor	A device fitted to a chimney or flue to prevent the emission to the atmosphere of grit and fly ash.
gross calorific value	*see* calorific value, gross.
gross energy	*see* energy, gross.
gross heat loss	*see* heat loss, gross.
group heating	*see* heating, group.
guide vanes	Sets of parallel, radial, or concentric blades within a duct or at the entry to a fan that guide the air in a desired direction.
hardness of water	The content of soluble and insoluble calcium and magnesium salts in water, expressed as calcium carbonate equivalent.
hardness of water, permanent	The content of soluble sulphates, chlorides and nitrates in water.
hardness of water, temporary	The content of bicarbonates of calcium and magnesium in water.
head pressure	*see* pressure, discharge.
head tank	A tank in which a constant level of liquid is maintained by means of a continuous supply and an overflow.
header	A manifold connecting a number of pipes, each having a control facility.
header tank	*see* feed and expansion tank.
heat	A form of energy that substances have as the effect of motions of their molecules.
heat, latent	Heat added or removed during a change of state, the temperature remaining constant.
heat, sensible	Heat that directly and reversibly affects the temperature of a substance.
heat, useful	Heat in a desired condition.
heat, waste	Heat rejected from a process.
heat balance	A statement of the heat input to, and heat loss from, an appliance, plant or structure, intended to account for all sources of heat and equivalent energy.
heat bridge	A path through an insulating wall, of relatively high conductance, through which heat may be lost or gained.
heat demand	The total output of heat required from a system at its points of use.
heat exchanger	A device designed to transfer heat between two physically separated fluids.
heat exchanger, cascade	A sequential arrangement of heat exchangers.

Term	Definition
heat exchanger, counter flow	A heat exchanger in which the fluids flow in substantially opposite directions.
heat exchanger, cross flow	A heat exchanger in which the paths of the two fluids are approximately at right angles.
heat exchanger, parallel flow	A heat exchanger in which both fluids flow substantially in the same direction.
heat flow	The transfer of heat from a high temperature to a low temperature area.
heat gain	The flow of heat into an enclosure from all sources other than by space heating means.
heat gain, design	*see* design heat gain.
heat gain, incidental	That part of the design heat gain which is incidental to the main function of a cooled enclosure.
heat gain, instantaneous	A heat gain that has an immediate effect on the internal conditions of a space.
heat gain, solar	Radiant heat from the sun absorbed through the boundaries of an enclosure.
heat gain, structure	The direct heat gain through the boundaries of an enclosure.
heat gain, ventilation	Heat gain in the form of warm and/or humid air flowing or leaking into the space.
heat generator	An appliance which uses energy in any form for space heating and/or for hot water production.
heat load	*see* load, heat.
heat loss	The rate of heat flow from a space.
heat loss, design	*see* design heat loss.
heat loss, gross	The total heat loss from a room or building including the unwanted loss of heat from the heating system.
heat loss, net	The heat loss from a room or a building, excluding any unwanted heat loss from the heating system.
heat loss, structure	The loss of heat through the boundaries of an enclosure.
heat loss, ventilation	Heat loss in the form of warm and/or humidified air flowing from the space.
heat meter	*see* meter, heat.
heat output	The useful heat emitted from an appliance.
heat pump system	A refrigeration system designed to make use of the heat rejected by the system, e.g. for space heating.
heat reclaim	The principle whereby heat that might otherwise be discharged to waste is passed through a suitable form of heat exchanger and thereby recovered for other uses.
heat recovery	A process that enables waste heat to be stored or transferred for the purpose of performing a useful function elsewhere.
heat rejection	The discharge of heat to waste or to a system permitting reclaim or recovery.
heat sink	The substance or environment into which heat is rejected.
heat transmission	Transmission of heat energy under the motive force of a temperature difference.

Term	Definition
heater, after-	*see* after-heater.
heater, balanced flue	A room-sealed space heating appliance having the inlet for combustion air and the outlet for products of combustion in adjacent external positions and so disposed that wind effects are substantially balanced between them.
heater battery, air	*see* battery, air heater.
heater, block storage	A heater in which a material of high thermal capacity moulded into blocks is heated by electric elements for delayed heat emission.
heater, combustion air	*see* combustion air heater.
heater, convection	*see* convection heater.
heater, direct fired	*see* direct fired heater.
heater, fan	An air heater in which the energy required for the movement of air is provided by a fan.
heater, flued	A heating appliance in which the products of combustion are removed through a flue.
heater, flueless	A heating appliance in which the products of combustion are discharged into the heated space.
heater, freestanding	A heater that is not fixed in position.
heater, immersion	*see* immersion heater.
heater, radiant	A heating appliance of which the effective heat output is in the form of radiant energy.
heater, radiant convector	A heating appliance of which the heat output is largely in the form of hot air but having a substantial proportion of radiant energy.
heater, Seduct	A room-sealed gas fired heater drawing its combustion air from, and discharging its products of combustion into, a specially designed air duct.
heater, unit air	An air heater with forced circulation mounted overhead.
heater, wall mounting	A heater designed for mounting in a fixed position on a wall.
heater, wall mounting, inset	A heater designed for mounting in a prepared recess in a wall.
heater, wall mounting, surface	A heater designed for mounting on the face of a wall.
heating	The provision of heat to an enclosure for the purpose of raising its temperature.
heating, background	A form of space heating that is not in itself sufficient to raise the temperature to comfort conditions throughout the year.
heating, baseboard (deprecated)	*see* heating, skirting.
heating, block	The heating of a single block of dwellings or premises from a central heat source.
heating, central	A system for the space heating of a building from a single source of heat or energy using a permanent installation operating as an entity.
heating, central, background	The application of central heating to give limited temperatures only and requiring supplementary heating to provide comfort conditions in any given area.

Term	Definition
heating, central, full	The application of central heating to give the temperatures necessary for comfort conditions throughout a building.
heating, central, partial	The application of central heating to give the temperatures necessary for comfort conditions in parts, but not all, of a building.
heating, central, selective	A system of central heating of limited output with means for directing the output to selected parts of the whole space.
heating, continuous	Method of operating a heating system by which heating is continuously available depending on the demands of the system.
heating, district	The distribution of a heating medium from a central plant or plants to a number of different users.
heating, domestic	Heating of residential premises for comfort purposes.
heating, full	Any means of heating where most of the usable spaces are heated to comfort conditions.
heating, group	The heating of a group of dwellings or premises from a central heat source.
heating, infra-red	Radiant heating using sources at temperatures lower than those producing incandescence.
heating, intermittent	Method of operating a heating system in which the heating is turned off automatically for predetermined periods.
heating, plenum	A duct system in which warm air is supplied under a slight pressure.
heating, process	Industrial application of heat to bring about chemical, physical or biological change.
heating, radiant	Heating by means of high temperature sources such that the principal means of heat transfer is radiation.
heating, reverse cycle	*see* reverse cycle heating.
heating, skirting	Room heating by means of continuous low height heating units or radiant panels sited along the walls near floor level.
heating, space	Providing heat to maintain the temperature of a space, intended for occupation or for a process, higher than that of its surroundings.
heating, spot	Heating of a localized area, usually by radiation.
heating appliance	Apparatus in which energy is transformed into heat in the form of hot water, hot air or radiation for the purpose of space heating.
heating appliance, domestic	*see* domestic heating appliance.
heating boiler	*see* boiler, (central) heating.
heating calorifier	*see* calorifier, heating.
heating capacity	The maximum rate of useful output from a heating appliance operating in normal conditions.
heating coil	*see* coil, heating.
heating regime	The method by which a particular heating system is controlled to satisfy the varying requirements of the space that is heated.
heating season	Period of the year during which space heating is normally necessary in a building to achieve comfort conditions.

Term	Definition
heating surface	A surface in a primary heat generator or in a heating appliance through which heat is transmitted to or from a heating medium.
heating surface, primary	The part of a boiler or heat generator that is in direct contact with the furnace and which receives heat by radiation or conduction.
heating surface, secondary	The part of a boiler or heat generator that receives heat from the combustion of the fuel mainly by convection.
heating system	A system designed for the purpose of heating a space, building, or group of buildings.
heating system, electric	A heating system in which the source of heat energy is electricity.
heating system, gas	A heating system in which the source of heat energy is gas.
heating system, high pressure hot water	A pressurized heating system with water temperatures of 125 °C or more.
heating system, high temperature hot water	*see* heating system, high pressure hot water.
heating system, hot water	A heating system in which hot water is used as a heating medium, being circulated to the locations where heat is required.
heating system, low pressure hot water	A system of heating in which hot water is distributed through pipes at substantially atmospheric pressure so that the temperature cannot exceed atmospheric boiling point.
heating system, medium pressure hot water	A pressurized heating system with water temperatures not exceeding 125 °C.
heating system, microbore	A domestic hot water central heating system using circulating pipes of sizes predominantly 12 mm bore and smaller.
heating system, oil fired	A heating system in which the source of heat energy is fuel oil.
heating system, one pipe	a) A central heating system in which each radiator is connected to the circulating pipe so that its inlet and outlet are nearly adjacent, the flow being in parallel with the circulating pipe. b) A district heating system in which the heating medium is distributed through a single pipe and finally discharged to waste after it has given up its useful heat.
heating system, pressurized	A system of heating in which hot water is distributed under pressure so that the water temperature may rise above atmospheric boiling point.
heating system, sealed	A hot water heating system in which the boiler, circulating pipes and heat emitters constitute a completely enclosed unit, the expansion of the water being accommodated in a diaphragm expansion vessel.
heating system, small bore	A domestic hot water central heating system in which the circulating pipes are of such a size that a pump is necessary to promote water circulation.
heating system, solar	A heating system in which the source of heat energy is solar radiation.
heating system, solid fuel	A heating system in which the source of heat energy is coal, coke or prepared solid fuel.

Term	Definition
heating system, steam	A heating system in which steam is used as a heating medium, being transmitted by pipes to the locations where heat is required and usually condensed there.
heating system, sub-atmospheric	A steam heating system in which the pressure is maintained in part below atmospheric by means of a vacuum pump.
heating system, thermal storage	Hot water produced by electrical means, obtained at a time when it is cheapest to energize the heating element, and stored in an insulated vessel.
heating system, vacuum	*see* heating system, sub-atmospheric.
heating unit	Heat emitter, located in the space to be heated, either directly fired or obtaining its heat from an intermediate heating medium.
heating unit, fan-assisted warm air	Heating unit in which air is impelled by a fan through a heat exchanger.
heating unit, fan-assisted warm air, direct	Fan-assisted warm air heating unit in which the heat exchanger is heated directly by a primary heat source.
heating unit, fan-assisted warm air, indirect	Fan-assisted warm air heating unit in which the heat exchanger is heated by hot water or steam.
heating-up time	The time taken for a space or a material being processed to reach a desired temperature.
height allowance	a) An allowance for vertical temperature gradient added to heat loss calculations based on a uniform temperature in the heated space. b) An additive factor in heat loss calculations to compensate for greater heat loss in the upper stories of multi-storey buildings.
hermetic compressor	*see* compressor, hermetic.
high efficiency air filter	*see* air filter, high efficiency.
high level wall mounting heater	*see* heater, wall mounting.
high pressure air oil burner	*see* oil burner, high pressure air.
high pressure float valve	*see* valve, float, high pressure.
high pressure hot water boiler	*see* boiler, high pressure hot water.
high pressure hot water heating system	*see* heating system, high pressure hot water.
high pressure side	In a refrigerating system, that portion which is subject to the higher or condensing pressure.
high temperature hot water heating system	*see* heating system, high pressure hot water.
high velocity system	*see* system, high velocity.
hit and miss damper	*see* damper, hit and miss.
hold-over system	*see* system, hold-over.
hopper, fuel	A fuel container or fuel feeding chute attached to a solid fuel combustion appliance.
hot gas defrosting	In a refrigerating system, the use of hot refrigerant gas to effect or facilitate the removal of frost.
hot rated input	The manufacturer's recommended heat input to a gas appliance when the appliance has reached thermal equilibrium.

Term	Definition
hot rated output	The hot rated input multiplied by the measured thermal efficiency.
hot water, domestic	*see* domestic hot water.
hot water accumulator	*see* accumulator, hot water.
hot water boiler	*see* boiler, hot water.
hot water calorifier	*see* calorifier, hot water.
hot water heating system	*see* heating system, hot water.
hot water load	The energy demand created by the hot water supply system.
hot water supply	The provision of hot water on tap for domestic, commercial or industrial purposes at temperatures appropriate to those purposes.
hot water supply, direct	System in which domestic hot water is heated by passing through a boiler.
hot water supply, indirect	A hot water supply system in which the water is heated in a calorifier by another heating medium, usually hot water or steam.
hot well	The tank or pipes in which the condensate from a steam engine or steam heating system is collected, and from which it is returned by the feed pump to the boiler.
humidification	The addition of water vapour to an air stream or space.
humidifier	A device for adding moisture to air to raise its humidity.
humidifier, evaporative	A humidifier for adiabatically introducing moisture into an air stream.
humidifier, pan	An indirect humidifier in which air picks up moisture from the surface of water (which may be warmed) in a shallow tank.
humidifier, spinning disc	A direct humidifier in which a film of water flows over the surface of a rapidly revolving disc until thrown off by centrifugal force.
humidifier, steam	A humidifier in which steam is injected into air.
humidistat	A type of hygrometer used in a control system.
humidity, absolute	The mass of water vapour present per unit mass of dry air.
humidity, relative	In humid air, the ratio expressed as a percentage of the water vapour actual pressure to the saturated vapour pressure at the same dry bulb temperature.
humidity, specific	In humid air, the ratio of the mass of water vapour to the mass of humid air.
hunting	Prolonged self-sustained oscillation of undesirable amplitude.
h.w.s. boiler	*see* boiler, h.w.s.
hydraulic gradient	a) The variation per unit length of the sum of the positional, static and velocity pressures of a liquid of a pipe running full. b) The slope of the fluid surface of flow in an open channel.
hydraulic motor	*see* motor, hydraulic.
hydrazine	Neutralizing and filming amines used to control corrosion in steam systems.
hydrostatic liquid level indicator	*see* liquid level indicator, hydrostatic.

Term	Definition
hydrostatic tank contents gauge	*see* gauge, tank contents, hydrostatic.
hygrograph	A device that measures and records relative humidity.
hygrometer	A device that enables the value of the relative humidity of a sample of air to be determined.
hygroscopic	Readily absorbing and retaining moisture.
ice-making capacity	The amount of ice that a refrigerating plant is able to produce in a given period of time.
ignition arch	An arch of refractory material that is located in a furnace near the point of entry of the fuel. When heated, the arch serves to stabilize ignition.
immersion heater	A device for heating liquid, consisting of electric resistance elements inside metallic tubes or blades that are placed directly in contact with the liquid.
impeller	Part of a fan or pump which, by its rotation, imparts movement to the fluid.
impingement air filter	*see* air filter, impingement.
impulse (steam) trap	*see* steam trap, impulse.
independent boiler	*see* boiler, independent.
indirect cylinder	*see* cylinder, indirect.
indirect fanned warm air heating unit	*see* heating unit, fan-assisted warm air, indirect.
indirect fired	A furnace arrangement in which the combustion chamber is separate from the one in which the charge is heated.
indirect hot water supply	*see* hot water supply, indirect.
indirect solar radiation	*see* solar radiation, diffuse (indirect).
induced draught	*see* draught, induced.
induction ratio	The ratio of entrained air to primary air.
induction system	*see* system, induction.
induction unit	A factory-made assembly into which room air is induced by high velocity supply air discharge. Some or all of the induced secondary air entering the unit may pass through a heat exchanger. The induced room air then mixes with the supply air and is discharged to the treated space.
industrial exhaust ventilation	*see* ventilation, industrial exhaust.
inertia, thermal	*see* thermal inertia.
infiltration	The fortuitous leakage of air through a building as a result of imperfection in the structure.
infra-red element	*see* element, infra-red.
infra-red heating	*see* heating, infra-red.
inhibitor	A chemical used in water to prevent or to minimize the corrosion of metal.
initial air filter resistance	*see* air filter resistance, initial.
injector	A device in which a stream of primary fluid (usually gaseous) is expanded to increase its kinetic energy and caused to entrain a current of a second fluid (usually liquid).

Term	Definition
injector, steam	An injector in which the primary and secondary fluids are steam and water respectively, used for boiler feed.
inlet guide vanes	A set of stationary vanes on the inlet side of a fan impeller covering the swept annulus of the impeller blades, to correct the helical swirl of the airstream and raise the performance and efficiency of the fan.
inset heater	*see* heater, wall mounting, inset.
inset wall mounting heater	*see* heater, wall mounting, inset.
insolation	The radiation received from the sun.
inspection door	A door providing access to an interior for maintenance.
installation	A specific system placed in position and set up for use.
instantaneous heat gain	*see* heat gain, instantaneous.
insulation, acoustic	a) The reduction of the unwanted or undesirable transmission of noise. b) A material having the property of reducing undesirable transmission of noise.
insulation, cryogenic	Thermal insulation the properties and application of which are suitable for use with the cold face temperature below 150 K.
insulation, thermal	a) The reduction of unwanted or undesirable heat transfer. b) A material having low heat transfer characteristics, used to reduce undesirable heat transfer.
intake air	*see* air, intake.
integral control	*see* control, integral.
integrating flow meter	*see* meter, flow, integrating.
integrating heat meter	*see* meter, heat, integrating.
intensity, sound	*see* sound intensity.
intercooler	In a compound refrigeration compression system: a) A desuperheater in which the temperature of refrigerant gas is reduced between stages of compression. b) A heat interchanger in which the temperature of refrigerant liquid is reduced by refrigerant evaporating at intermediate pressure.
interior zone	*see* zone, interior.
interlock	The interconnection of a primary device with one or more other devices so that a change in the condition of the primary device will result in some predetermined action or restraint on a change of condition of the other devices.
intermittent heating	*see* heating, intermittent.
intermittent heating margin	The additional heating capacity that is needed to permit a system to operate intermittently.
internal conditions	The parameters that specify the relevant environmental conditions within a space served by a heating, ventilating, or air-conditioning system.
internal environmental temperature	*see* temperature, environmental.
internal temperature	*see* temperature, internal.

Term	Definition
interstitial condensation	The condensation which forms within a material or an element of a structure as a result of a difference of both temperature and vapour pressure across its faces.
ion exchange	A form of water treatment in which one ion is first exchanged for another, then held in temporary combination, and then given up to a regenerating solution.
ionization	The conversion of some or all the particles in a gas into electrically charged particles.
iris damper	*see* damper, iris.
isolating switch	*see* isolator.
isolating valve	*see* valve, isolating.
isolator	A mechanical device capable of opening or closing an electrical circuit under conditions of no-load or negligible current to permit safe access to that circuit.
isotherm	A line on a map or chart connecting points of equal temperature.
isothermal jet	*see* jet, isothermal.
jet	A fluid stream issuing from a slot, orifice or nozzle.
jet, isothermal	A jet of air having the same temperature as the ambient air.
jet angle	The angle at which a jet or jets will diverge in free space.
jet drop	The downward change in direction of an air jet that has a temperature different from that of the ambient air.
jet envelope	The boundary between the jet and the surrounding air.
jet rise	The upward change in direction of an air jet that has a temperature different from that of the ambient air.
jet spread	The divergence, generally conical in shape, of a jet from the point of origin (outlet).
joint	A rigid or flexible connection between adjacent pipes or ducts or their respective fittings or accessories, providing a continuous leakproof run.
joint, capillary	A pipe joint used with copper and some other metals in which molten solder is drawn by capillary action into the annular space between the outside of the pipe and the inside of the fitting.
joint, compression	A pipe joint used with copper and some other materials in which the tightening of a nut causes a shaped olive to bear on the outside of the pipe and seal the joint.
joint, flanged	A pipe or duct joint in which flanges on the ends of the adjacent components abut and are bolted together.
joint, screwed	A pipe joint in which a male thread on one component is screwed into a female thread on the other component with a suitable jointing compound on the pipe threads.
joint, slip	A duct joint in which the end of one component slips inside the end of the other and is secured by screws or bolts.
joint, spigot and socket	A pipe joint in which a spigot on one component slips inside a socket on the other component and is secured by filling the annular space with appropriate material.
jointing compound	*see* jointing medium.

Term	Definition
jointing medium	Material used for making a pressure-tight joint between two surfaces.
katathermometer	An instrument used to assess the cooling effect of an air current.
kinetic energy	*see* energy, kinetic.
lagging	Thermal insulation.
lagging cleats	A frame used to support lagging.
laminar flow	*see* flow, laminar.
latent heat	*see* heat, latent.
lighting troffer, air	An air inlet or extract device combined with a luminaire.
limit switch	*see* switch, limit.
linear air terminal device	A grille with an aspect ratio of 10 : 1 or greater.
liquid immersion freezer	*see* freezer, liquid immersion.
liquid-in-glass thermometer	*see* thermometer, liquid-in-glass.
liquid level indicator	A device for measuring and indicating the height of the surface of fluid in a container above the bottom of the container or an arbitrary zero.
liquid level indicator, dipstick	A liquid level indicator in which the level of liquid is measured by the wetting of a calibrated staff inserted into the liquid from the top of the container.
liquid level indicator, float gauge, cable operated	A liquid level indicator in which the surface of the fluid is detected by a float coupled to the indicating element by a taut guided cable.
liquid level indicator, float gauge, magnetically operated	A liquid level indicator in which the position of the float is transmitted from inside the tank by a magnetic device to an indicator outside the tank.
liquid level indicator, hydrostatic	A liquid level indicator in which the hydrostatic pressure generated by the contents of the tank operates the indicating element.
liquid level indicator, sight tube	A liquid level indicator in which a vertical transparent tube, open at the top, is connected to the tank contents at the bottom. It is provided with an adjacent vertical calibrated scale, the meniscus of the liquid within the tube being the mark.
liquid receiver, refrigerant	A vessel permanently installed in the high pressure side of a system to provide a reserve of liquid refrigerant.
liquid separator, refrigerant	A vessel permanently installed in the low pressure side of a system for the purpose of trapping unvaporized refrigerant.
liquefied petroleum gas (LPG)	*see* gas, liquefied petroleum.
live steam	*see* steam, live.
load	The output required from an appliance or system.
load, connected	The aggregate of the maximum demand of individual units connected to a system, exclusive of distribution losses.
load, cooling	The amount of heat to be removed by a cooling plant to meet specified conditions.
load, heat	The amount of heat required to be put into a system at the point of generation or by an appliance.
load, peak	The maximum output required of a supply source.

Term	Definition
load, refrigerating	The rate of heat transfer to the evaporator or cooling element in a refrigerating system.
load density	The average maximum heat demand over a specific area in a heating scheme.
load factor	The ratio of the average load to the maximum demand.
load pattern	The change of load with time.
local air velocity	A velocity at a specific point in a fluid stream, e.g. near a solid surface or at the outlet of a grille.
lock-shield valve	*see* valve, lock-shield.
log., mean temperature difference	*see* temperature difference, log. mean.
louvre	An assembly of sloping vanes intended to permit air to pass through.
low pressure control	A pressure-responsive control device connected to the low pressure side of a refrigerating system.
low pressure hot water	*see* heating system, low pressure hot water.
low pressure side	In a refrigerating system that portion which is subject to the lower or evaporating pressure.
lubricated plug cock or valve	*see* valve, plug, lubricated.
luminaire	A lighting fitting.
machinery room	An enclosure in which plant such as pumps, compressors are housed.
main	A pipe or a cable used for the purpose of giving a general supply as distinct from a supply to individual consumers.
make-up air	Fresh air to replenish air taken out of an enclosure.
make-up water	Water supplied to replenish that lost by evaporation or in other ways.
manifold	A pipe or chamber with several openings or outlets.
manometer	A device for measuring pressure employing the principle of displacement of liquid levels in a liquid-filled "U" tube. The limbs of the "U" may be vertical, inclined or curved.
manometric pressure	The pressure measured by a manometer.
manual	Capable of being operated by personal intervention.
manual damper	*see* damper, manual.
manufactured gas	*see* gas, manufactured.
margin, flash	*see* flash margin.
master controller	*see* controller, master.
master stop switch	*see* switch, master stop.
master switch	*see* switch, master.
maximum continuous rating	The highest rate of continuous operation for which a plant has been designed.
maximum/minimum thermometer	*see* thermometer, maximum/minimum.
maximum simultaneous demand	*see* demand peak.
mean radiant temperature	*see* temperature, mean radiant.
mechanical air filter	*see* air filter, mechanical.

Term	Definition
mechanical dust collector	*see* dust collector, mechanical.
mechanical seal	*see* seal, mechanical.
mechanical stoker	*see* stoker, mechanical.
mechanical ventilation	*see* ventilation, mechanical.
medium pressure air oil burner	*see* oil burner, medium pressure air.
medium pressure hot water heating system	*see* heating system, medium pressure hot water.
metabolic rate	The rate of production of energy by a human body.
meter, flow	A device for measuring rate of flow of fluid in a pipeline or channel in either volumetric or gravimetric units.
meter, flow, integrating	A flow meter that indicates the cumulative value of the quantity of fluid with respect to an arbitrary zero.
meter, heat	An instrument for measuring the quantity of heat transmitted through a pipe or ductwork system at a particular point in such a system.
meter, heat, apportioning	A heat meter capable of apportioning costs between different users.
meter, heat, evaporative	A heat meter employing the principle of measuring the quantity of fluid evaporated by the heat transmitted as an inference of the quantity of heat.
meter, heat, integrating	A heat meter that measures heat by integrating the water flow and the temperature difference between two selected points.
meter, heat, shunt, inferential	A heat meter that, with the aid of sensors in a bypass to the main flow of fluid, indicates the value of the quantity of heat of the total flow.
meter, orifice	A device from which fluid velocity may be determined by comparison of the pressure on the wall of a pipeline upstream and the pressure downstream of an orifice located in the pipeline.
meter, positive displacement	A device for measuring the quantity of fluid passing through a pipeline by counting discrete measured volumes of the fluid, such counting being indicated in units of volumetric measure.
meter, turbine flow	A meter consisting of a free-running rotor mounted coaxially in a casing which is in the form of a short length of pipe.
meter, venturi	A device from which fluid velocity may be determined by comparison of pressures on the wall of a pipeline and a smooth-shaped throat in the same pipeline; it may also be applied to liquids in open channels.
methylene blue test	A method of testing air cleaning devices in which methylene blue dust is used to measure the efficiency of the filter.
microbore heating system	*see* heating system, microbore.
mixed flow fan	*see* fan, mixed flow.
mixing chamber	An enclosure in which air at differing conditions is mixed.
mixing ratio	The ratio of the mass of water vapour to the mass of dry air with which the water vapour is associated.

Term	Definition
mixing section	A section for mixing two air streams at different temperatures or humidities, having two inlet ducts with a damper, or dampers, controlling the flow rate of air being discharged by each duct into the casing.
mixing valve	*see* valve, mixing.
moisture content	a) The amount of moisture in a substance expressed as the mass of moisture per unit mass of the dry substance. b) The amount of moisture in a substance expressed as the mass of moisture per unit mass of the moist substance. c) For moist air, the mass of water vapour per unit mass of dry air: *see* mixing ratio (preferred).
Mollier diagram	A plot of thermodynamic properties of a substance or mixture having specific enthalpy as one of the co-ordinates, e.g. the pressure-enthalpy diagram for refrigerants.
monitoring	Continuous observation of a variable.
monitoring, centralized	A system of monitoring with all observations indicated or recorded at a central point.
Moody curve	A graph giving friction factors as a function of pipe relative roughness and Reynolds number.
motor, electric	Any device for converting electrical energy into mechanical torque.
motor, hydraulic	Any device for converting hydraulic energy into mechanical torque.
motor starter	A device for starting an electric motor and which may also control the rate of acceleration.
motor starter, automatic	A motor starter in which the means of accelerating the motor, either stepped or stepless, occur without manual assistance.
mounting, anti-vibration	*see* anti-vibration mounting.
moving grate	*see* grate, moving.
multi-cell dust collector	*see* dust collector, cellular or multi-cell.
multi-stage fan	*see* fan, multi-stage.
multiplate freezer	*see* freezer, multiplate.
multiple-effect compression	A method of compression whereby one or more additional charges of refrigerant enter a compressor cylinder subsequently to, and at a higher pressure than, the charge drawn in by the piston in the suction stroke.
multiple leaf damper	*see* damper, multiple leaf.
natural circulation	Circulation that depends on states or conditions such as thermal currents or differences in level.
natural circulation boiler	*see* boiler, natural circulation.
natural convector	*see* convector, natural.
natural draught	*see* draught, natural.
natural gas	*see* gas, natural.
natural ventilation	*see* ventilation, natural.
natural water	*see* water, natural.
needle valve	*see* valve, needle.

Term	Definition
negative pressure	*see* pressure, negative.
net calorific value	*see* calorific value, net.
net energy	*see* energy, net.
net heat loss	*see* heat loss, net.
neutralizing amines	*see* amines, neutralizing.
new energy	*see* energy, new.
noise	Sound which is undesired by the recipient.
noise criteria	*see* noise rating.
noise level, generated	*see* generated noise level.
noise rating	An agreed set of empirical curves relating octave band sound pressure level to the centre frequency of the octave bands, each of which is characterized by a "noise rating".
non-condensible gas (refrigeration)	Gas that does not condense at the temperature and partial pressure at which it exists in the condenser.
non-depletive energy	*see* energy, non-depletive.
non-directional fixed grille	*see* grille, fixed, non-directional.
non-reverberant (anechoic)	A condition in a room where the only sound is that received directly from the source without reflection.
non-storage calorifier	*see* calorifier, non-storage.
normal exposure	*see* exposure, normal.
normally closed	A condition of a valve/actuator combination in which the valve moves to a fully closed position when the power supply is cut off.
normally open	A condition of a valve/actuator combination in which the valve moves to a fully open position when the power supply is cut off.
nozzle	An air terminal device so designed as to give low energy loss and thus produce a maximum throw by minimum entrainment.
nuclear energy	*see* energy, nuclear.
oblique screw down stop valve	*see* valve, screw down stop, oblique.
occupied zone	An enclosure in which human activity occurs.
off-peak	Load that occurs at a time other than a demand peak.
offset	Sustained deviation that is the result of an inherent characteristic of proportional control action.
off set	A deviation in a length of pipe or duct.
off take	A branch pipe or duct allowing flow from a larger main supply pipe or duct.
oil burner	A burner for the combustion of liquid oil fuel.
oil burner, atomizing	An oil burner in which the fuel is atomized before being mixed with air to form a combustible mixture.
oil burner, atomizing pressure jet	An atomizing oil burner in which the atomization is effected by swirl of the fuel passing through a nozzle, the swirl being imparted to the fuel by the design of the nozzle and the pressure and viscosity of the fuel fed into it.
oil burner, emulsifying	An atomizing oil burner in which the atomization is effected by a nozzle which is fed with an emulsified mixture of the oil and compressed air.

Term	Definition
oil burner, gasifying	A vaporizing oil burner in which the fuel is vaporized in a heated vessel.
oil burner, high pressure air	An atomizing oil burner in which atomization is effected by the impact of a stream of compressed air at a pressure in excess of 100 kN/m^2.
oil burner, medium pressure air	An atomizing oil burner in which atomization is effected by the impact of a stream of compressed air at a pressure between 7 kN/m^2 and 100 kN/m^2.
oil burner, perforated sleeve (short drum blue flame)	A vaporizing oil burner in which a controlled supply of fuel feeds one or more narrow troughs, each surmounted by a perforated sleeve through which combustion air enters and mixed with fuel vapour from the troughs.
oil burner, pot type	A vaporizing oil burner in which the fuel is vaporized at the base of a metal pot, with combustion air introduced either through perforations in the wall of the pot or by separate inlets.
oil burner, rotary cup	A burner in which liquid oil fuel, at low pressure is supplied at a controlled rate to the central axis of a rapidly rotating conical cup.
oil burner, rotary vaporizing (wall flame type)	A vaporizing oil burner in which fuel is supplied to a rotating cup, disc or tube, and is thrown by centrifugal force onto a vaporizing surface arranged coaxially with the shaft of the oil distributor.
oil burner, steam (or air) assisted pressure jet	An atomizing oil burner in which atomization is effected by the impact of air supplied from a fan at a pressure not exceeding 10 kN/m^2.
oil burner, vaporizing	An oil burner in which the oil is vaporized before being mixed with air to form a combustible mixture.
oil-fired boiler	*see* boiler, oil-fired.
oil-fired heating system	*see* heating system, oil-fired.
oil separator	A device in the discharge pipe of a compressor to separate lubricating oil from the high pressure gas.
one-pipe system	*see* a) heating system, one-pipe. b) system, single pipe.
onion diagram	A representation on a flat surface, by projection, of graphical information from an actual or hypothetical spherical surface.
on/off/auto switch	*see* switch, on/off/auto.
on-off control	*see* control, two position (or on-off control).
on-peak	Load that occurs simultaneously with a demand peak.
open fire	A domestic appliance with a permanent front opening, which distributes heat by radiation.
open vent	A pipe, which cannot be closed off, rising from a high point in a hot water circuit to permit the escape of air or steam from the system.
opposed blade damper	*see* damper, opposed blade.
optical filter test	*see* air filter test, optical.
optimum start control	*see* control, optimum start.

Term	Definition
orientation	The direction, with respect to points of the compass, in which building axes lie or external walls face.
orifice meter	*see* meter, orifice.
overflow	A pipe connected to a vessel (e.g. a cistern) to discharge excess liquid.
overload	A level of operation above the maximum continuous rating.
packaged boiler	*see* boiler, packaged.
packaged unit	A factory assembly of components of equipment fixed on a common mounting to form a discrete functional unit.
packing	Substance used around a moving or turning element such as a pump shaft or valve spindle to prevent leakage.
packless valve	*see* valve, packless.
paddle blade fan	*see* fan, paddle blade.
pan humidifier	*see* humidifier, pan.
panel air filter	*see* air filter, panel.
panel radiator	*see* radiator, panel.
parallel flow heat exchanger	*see* heat exchanger, parallel flow.
parallel slide valve	*see* valve, parallel slide.
partial air-conditioning	*see* air-conditioning, partial.
partial central heating	*see* heating, central, partial.
peak load	*see* load, peak.
peak load station	A heat source supplying heat intermittently to a district heating system at times of maximum demand.
peak lopping	Reducing the peak load on the principal source of supply by using auxiliary plant at times of peak demand.
perforated ceiling	A false ceiling through the holes of which air is introduced into an enclosure at low velocity.
perforated plate	A form of ventilation grille.
perforated sleeve oil burner	*see* oil burner, perforated sleeve.
performance energy ratio	A measure of the efficiency with which energy is converted to work.
performance factor	The ratio of heat removed by a refrigerating system to the heat equivalent of the energy expended.
performance specification	*see* specification, performance.
perimeter zone	*see* zone, perimeter.
permanent hardness	*see* hardness of water, permanent.
pH	The logarithm of the reciprocal of the hydrogen ion concentration in water, expressed as a number between 0 and 14 to indicate the degree of acidity or alkalinity.
pilot	A small source of energy capable of indicating the presence of, or initiating the supply of, a large source of energy.
pilot flame	A small gas flame for igniting gas at the burner ports.
pilot valve	*see* valve, pilot.
pinch valve	*see* valve, pinch.

Term	Definition
pipe	A conduit for the conveyance of a fluid, usually of cylindrical form.
pipe, balance	*see* balance pipe.
pipe, bleed	*see* bleed pipe (refrigerant).
pipe anchor	*see* anchor, pipe.
pipe guide	A support or hanger that does not constrain pipe movement.
pipe-in-pipe	A pipe assembly consisting of an insulated service pipe or pipes encased in a pressure-tight casing of suitable material. The assembly may or may not incorporate an air gap between the insulation and the outer casing.
pipe losses	a) The loss of energy that results from friction and turbulence associated with the flow of fluid through a pipe. b) The loss of heat from the surface of a hot pipe.
pipe sizing	The calculation or assessment of pipe sizes in a system taking account of desired flow rates.
pipe tracer	A heating element externally attached to a pipe in order to heat the contents.
pipeline	An assembly of lengths of pipe, bends, expansion units, fittings and valves.
pipework	The units used to build and support a pipeline.
pitot tube	A detector for transmitting the static and dynamic pressure of a moving fluid stream. The difference in the measured pressures is used to determine the velocity of the fluid.
plant	Primary energy transforming components of building services systems and associated equipment.
plant, boiler	*see* boiler plant.
plant response	The reaction time of a plant related to control requirement.
plant room	A room within a building which houses plant or machinery.
plate rating	*see* rating, plate.
plenum chamber	A chamber under higher than surrounding pressure for receiving air before delivery to a conditioned space or a combustion system.
plenum heating	*see* heating, plenum.
plenum system	*see* system, plenum.
pneumatic conveying	The use of an airstream to convey particulate matter by entrainment.
plug	A pipe fitting to prevent flow.
plug, fusible	*see* fusible plug.
plug cock	*see* valve, plug.
plug valve	*see* valve, plug.
positive displacement meter	*see* meter, positive displacement.
pot type oil burner	*see* oil burner, pot type.
potential energy	*see* energy, potential.
power	The rate of doing work or the rate at which energy is transmitted.

Term	Definition
power, boiler	*see* boiler power.
power, sound	*see* sound power.
pre-burner unit	A water-cooled furnace external to the main heating surface of an associated boiler.
precipitator	An apparatus in which entrained dust is separated from the air or gas in which it is carried.
pre-filter	*see* air filter, pr-.
preheating	a) Heating of a substence, e.g. boiler feed water before its entry to the zone of reaction. b) Operation of a heating system prior to the occupation of a room or building.
pressure, back	a) An increase in pressure in a pipe carrying a fluid in motion caused by the introduction of a resistance downstream. b) The pressure of refrigerant vapour at the suction inlet of a compressor.
pressure, circulating	That pressure which causes fluid to flow round a closed circuit.
pressure, critical	*see* critical pressure.
pressure, differential	*see* differential pressure.
pressure, discharge	The pressure in a system measured at the outlet from a compressor, pump, or fan.
pressure, equalizing	The pressure existing in a refrigerating system when the compressor is at rest.
pressure, equilibrium	The state reached when differential pressure is zero.
pressure, fan static	*see* fan static pressure.
pressure, fan total	*see* fan total pressure.
pressure, fan velocity	*see* fan velocity pressure.
pressure, negative	A pressure below atmospheric.
pressure, saturated vapour	The pressure exerted by a vapour when saturated at a given temperature.
pressure, sound	*see* sound pressure.
pressure, static	The difference, in consistent units, between absolute pressure at a point and the absolute pressure of the ambient atmosphere.
pressure, suction (back)	The pressure in a system measured at the inlet to a compressor, pump or fan.
pressure, test	*see* test pressure.
pressure, total	The algebraic sum of the static pressure and velocity pressure at any particular point.
pressure, vapour	The pressure exerted by a vapour either by itself or in a mixture of gases.
pressure, velocity	The pressure equivalent of fluid velocity at any particular point.
pressure, working	The pressure at which a system will normally operate.
pressure control valve	*see* valve, pressure control.
pressure difference	*see* differential pressure.
pressure drop	Irrecoverable loss of pressure.

Term	Definition
pressure gauge	*see* gauge, pressure.
pressure gradient	The change in pipe pressure with pipe length.
pressure jet oil burner	*see* oil burner, steam (or air) assisted pressure jet.
pressure reducing valve	*see* valve, pressure reducing.
pressure regulating valve	*see* valve, pressure regulating.
pressure regulator	A device used to control pressure to a preset value.
pressure relief device	*see* bursting disc; fusible plug.
pressure retaining valve	*see* valve, pressure retaining.
pressure switch	*see* switch, pressure.
pressure vessel	A closed vessel containing fluid at a pressure differing from atmospheric pressure.
pressurization system	a) Equipment used to maintain sufficient pressure in a pressurized heating system to give the desired flash margin. b) Equipment used to maintain sufficient pressure in a pressurized cooling system to allow dispensing with a feed and expansion tank. c) Equipment used to control the air pressures within a building so that, in the event of a fire, the smoke is guided clear of escape routes.
pressurization unit	Equipment used to maintain an elevated pressure in a closed liquid system.
pressurized heating system	*see* heating system, pressurized.
primary air	*see* air, primary.
primary energy	*see* energy, primary.
primary heating surface	*see* heating surface, primary.
process	The act of physically or chemically changing, including combining, matter or of converting energy.
process heating	*see* heating, process.
programmed controller	*see* controller, programmed.
propagation, sound	*see* sound propagation.
propane	*see* gas, liquefied petroleum.
propeller fan	*see* fan, propeller.
proportional band	The percentage of the range of the measured variable for which a proportional controller will produce 100 % range in output.
proportional control	*see* control, proportional.
protective device	Any means of preventing system equipment from damage by overload, corrosion, mechanical or electrical failure.
protective relay	*see* relay, protective.
psychrometer	A wet and dry bulb hygrometer.
psychrometer, Assmann	An aspirated hygrometer in which a fan draws a current of air over the wet and dry bulbs of thermometers.
psychrometer, sling	A hygrometer that is whirled through the air.

Term	Definition
psychrometric chart	The graphical presentation of the thermodynamic properties of humid air. In its usual form the co-ordinates are dry bulb temperature and moisture content, and a family of curves of equal, relative humidity is plotted together with plots of wet bulb temperature, specific enthalpy and specific volume.
psychrometry	The science and practice of mixtures of air and water vapour.
pulverized fuel	Solid fuel (usually coal) which has been reduced to such a fine state of division that a high proportion passes through a 75 μm British Standard sieve.
pulverizing mill	A machine for producing pulverized fuel, from which the product is conveyed by a current of air.
pump	Mechanical device for producing pressure in a closed system or for moving liquid through pipes.
pump, centrifugal	A pump which, by the action of a rotating bladed impeller, generates centrifugal and other forces to produce a pressure difference between inlet and outlet.
pump, circulation	A pump, usually centrifugal, used to move liquid in a circuit.
pump, gear	A pump having a pair of meshed gear wheels working in a closely fitting casing, the liquid being carried in the spaces between the teeth.
pump, heat	*see* heat pump system.
pump, reciprocating	A pump in which liquid is driven by the movement of a piston within a cylinder.
pump, transfer	A pump for transferring liquid from one storage vessel to another.
pump curve	A characteristic curve for a pump showing the relationship between the pressure developed and the rate of flow through the pump.
pumping (steam) trap	*see* steam trap, pumping.
purge	a) A flow of air used to clear airborne combustibles or products of combustion from the furnace and gas passages of a boiler. b) The removal of non-condensible gases or other unwanted fluids from a refrigerating system.
push-pull exhaust	a) A method whereby comparatively high air supply velocities are induced through a slot by the extraction of a relatively small volume of air through an outlet whose cross-sectional area is considerably greater than that of the inlet slot. b) A method of extraction using comparatively small volumes of air that utilizes high inlet and low outlet velocities that are created by the large area ratio between outlet and inlet openings.
pyrometer	A device for measuring temperature in the incandescent range.
radial blade fan	*see* fan, radial blade.
radiant convector heater	*see* heater, radiant convector.
radiant energy	*see* energy, radiant.
radiant heater	*see* heater, radiant.
radiant heating	*see* heating, radiant.

Term	Definition
radiant panel	A substantially flat radiating surface connected to a source of heat.
radiant strip	A radiant panel of elongated form.
radiator	A unit for space heating that warms the air by convection and provides radiation.
radiator, column	A radiator built up from sections each containing two or more separate fluid passages in the form of hollow columns.
radiator, panel	A radiator made from sheet indented to form internal fluid passages.
radiator valve	*see* valve, radiator.
radiator vent cock	An air cock for use on a radiator.
radius of diffusion	The throw of air from a ceiling mounted diffuser.
rate action control	*see* control, derivative.
rating	The output of any unit expressed in appropriate units per unit time.
rating, boiler	*see* boiler rating.
rating, continuous maximum	The rating at specified operating conditions.
rating, plate	A plate fixed to an item of plant or equipment on which is shown the salient values of the operating conditions.
rating, short-time	The rate of working of an appliance in excess of the maximum continuous rating consistent with constraints preventing permanent damage.
raw water	*see* water, raw.
receiver	A vessel that stores compressed air or refrigerant intermediately between compressor and distributing system.
reciprocating compressor	*see* compressor, reciprocating.
reciprocating pump	*see* pump, reciprocating.
recirculated air	*see* air, recirculation.
recirculation	The process of returning air extracted from a space to a central air treatment plant before full or partial redistribution to the space.
recirculation air	*see* air, recirculation.
reclaimed energy	*see* energy, reclaimed.
recovered energy	*see* energy, recovered.
recovery time	The time taken to heat the contents of a storage calorifier from cold to working temperature.
rectifier, refrigerant	a) In an absorption system that part between the analyser and the condenser. A heat exchanger for condensing the absorbent. b) In a vapour compression system, a heat exchanger in which refrigerant is boiled off from oil-refrigerant solution bled from the evaporator.
reducing valve	*see* valve, pressure reducing.
reference conditions	Specified conditions of pressure, temperature, and relative humidity for air.
reflection coefficient, sound	*see* sound reflection coefficient.

Term	Definition
reflectivity	Proportion of incident energy returned by reflection from a given surface.
refractory	Material capable of withstanding very high temperatures.
refrigerant	A substance that undergoes a cycle of operations during which it accepts heat at a relatively low temperature and rejects heat at a higher temperature.
refrigerant, primary	The refrigerant in the primary circuit of a refrigerating system.
refrigerant, secondary	A heat transfer medium employed in indirect expansion systems to convey heat to the evaporator.
refrigerant accumulator	*see* accumulator, refrigerant.
refrigerant analyzer	*see* analyzer, refrigerant.
refrigerant bleed pipe	*see* bleed pipe (refrigerant).
refrigerant distributor	*see* distributor, refrigerant.
refrigerant evaporator	*see* evaporator, refrigerant.
refrigerant liquid receiver	*see* liquid receiver, refrigerant.
refrigerant liquid separator	*see* liquid separator, refrigerant.
refrigerant rectifier	*see* rectifier, refrigerant.
refrigerating capacity	*see* load, refrigerating.
refrigerating duty	The refrigerating capacity at stated conditions specified by the user.
refrigerating load	*see* load, refrigerating.
refrigerating system	A combination of interconnected refrigerant-containing parts in which a refrigerant is circulated for the purposes of transferring heat.
refrigerating system, absorption	A refrigerating system in which refrigerant vapour is absorbed and subsequently expelled by the application of heat.
refrigerating system, adsorption	A refrigerating system in which refrigerant vapour is adsorbed by a solid and subsequently expelled by the application of heat.
refrigerating system, air cycle	A refrigerating system in which air is compressed, cooled and then expanded in an expansion cylinder or expansion turbine to produce the cooling effect by absorbing sensible heat.
refrigerating system, direct expansion	A refrigerating system in which the evaporator is in direct contact with the substance to be cooled.
refrigerating system, dry compression	A refrigerating system in which the vapour entering the compressor is either “dry saturated” or “superheated”.
refrigerating system, ejector	A refrigerating system in which water is the refrigerant. Evaporation is induced by lowering the pressure and drawing off the vapour by means of a steam ejector.
refrigerating system, steam jet	*see* refrigerating system, ejector.
refrigerating system, vapour compression	A refrigerating system in which refrigerant vapour is restored to the liquid phase by mechanical compression and subsequent cooling.
refrigerating system, wet compression	A refrigerating system in which some liquid refrigerant is mixed with the vapour entering the compressor.
refrigeration	The process of removing heat.
refrigeration, split system	*see* system, split.

Term	Definition
refrigeration, thermo-electric	*see* thermo-electric cooling.
refrigeration, ton of	*see* ton of refrigeration.
refrigerator	An appliance or container equipped with means for cooling the contents.
register	A combined grille and damper assembly.
regulating valve	*see* valve, pressure-reducing.
regulation	The process of adjusting the rates of fluid flow in a distribution system to achieve specified values.
reheat	The supply of heat for temperature control as the final stage of a psychometric cycle.
reheater	A unit in which a preconditioned, low temperature air supply may be reheated by means of hot water, steam or electric coils.
relay	A device by which a change in a primary circuit causes a change in secondary circuits, the change in secondary circuits having no influence on the primary circuit.
relay, averaging	A relay that receives two or more inputs and produces an output which is an average of the sum of the inputs.
relay, magnetic overload	A magnetically operated device, connected in a circuit, which serves to interrupt the supply thereto.
relay, protective	A relay which causes the opening of a circuit breaker to protect electrical plant in the event of abnormal conditions occurring therein.
relay, reversing	A relay in which the input governs the value of the output and causes the value of the output to change in the reverse direction to the input.
relay, thermal overload	A thermally operated device connected in a circuit, which serves to interrupt the supply thereto.
relay, time delay	A relay incorporating a timing device which, after a change in the primary circuit, causes a change in the secondary circuit to take place after a preset time delay.
relief air	*see* air, relief.
relief valve	*see* valve, relief.
relative humidity	*see* humidity, relative.
relative roughness	*see* roughness, relative.
reliability	The ability of an item or a system to perform a required function under stated conditions for a stated period of time. (Usually expressed as a probability.)
replaceable media air filter	*see* air filter, replaceable media.
reset button	*see* button, reset.
resistance, surface	*see* surface resistance.
resistance, thermal	*see* thermal resistance.
resistivity, thermal	*see* thermal resistivity.
resonance	A condition resulting from the combination of the reactances of a system, in which a response to an alternating stimulus of constant magnitude reaches a maximum at a particular frequency.

Term	Definition
restrictor, capillary tube	*see* capillary tube restrictor.
resultant temperature (dry)	*see* temperature, dry resultant.
return	The passage taken by a heating medium such as water after it has passed through all heater units and is on its way back to the inlet of the heat source.
return air	*see* air, return.
return connection	*see* tapping, return.
return, dry	A pipe used in a steam heating system to return the steam or the vapour to the source of heat.
return tapping	*see* tapping, return.
return temperature	*see* temperature, return.
return temperature limiter	A thermostatic valve controlling the temperature at which water is returned to the principal circuit of a heating system.
reverberant field method	The determination of room sound pressure level by reference to that in a reverberant chamber.
reverberation	The persistance of sound, in an enclosure, caused by repeated reflections at the boundaries.
reverse cycle heating	The use of a refrigerating system as a heat pump.
reverse return system	*see* system, reverse return.
reversing relay	*see* relay, reversing.
rich solution	*see* solution, strong (rich).
Ringelmann chart	A series of charts in shades of grey ranging from black to white by which density of smoke may be assessed.
rise	The upward change of direction of an initially substantially horizontal air stream.
riser	A vertical pipe or duct.
riser, dry	A pipe connected to hydrants in a tall building with a coupling for connecting an external water supply.
riser, wet	A pipe connected to fire hydrants permanently connected to a water supply.
rising main	A supply riser, usually for water.
rod element	*see* element, rod.
roof extract unit	A roof top ventilator.
room air-conditioner	Packaged equipment for air-conditioning the enclosure in which it is located.
room air-conditioner, self-contained	A room air-conditioner in which the compressor and condenser are integral parts of the air handling unit.
room air-conditioner, split	A room air-conditioner in which the compressor and condenser are separately mounted outside the air-conditioned enclosure.
room air-conditioner, water cooled	A room air-conditioner which uses water as an intermediate heat rejection medium.
room sealed appliance	An appliance which, when in operation, has the combustion air inlet and the combustion products outlet isolated from the room in which the appliance is fitted.
rotary compressor	*see* compressor, rotary.

Term	Definition
rotary vaporizing oil burner	*see* oil burner, rotary vaporizing (wall flame type).
rotary viscous air filter	*see* air filter, rotary viscous.
roughness, absolute	The linear distance from peak to trough of a surface irregularity.
roughness, relative	The ratio of the average height of roughness protuberances from a duct or pipe wall to the duct width or pipe diameter.
run-around coils	*see* coils, run around.
safety head	In a compressor, an independent cylinder head, spring loaded to withstand normal operating pressure but capable of yielding to abnormal pressure.
safety valve	*see* valve, safety.
saturated vapour	Vapour in equilibrium with its liquid.
saturated vapour pressure	*see* pressure, saturated vapour.
saturation efficiency of air washer	*see* air washer, saturation efficiency of.
screen wet bulb temperature	*see* temperature, wet bulb, screen.
screw compressor	*see* compressor, screw.
screw down stop valve	*see* valve, screw-down stop.
scroll type dust collector	*see* dust collector, scroll type.
scrubber	A device for cleaning contaminated air by passing it through a water spray or cascade.
seal, bellows	A mechanical seal in which the seal ring is attached to the casing by a metallic bellows.
seal, mechanical	A component for sealing a casing under pressure from the atmosphere at the point where a transmission shaft emerges.
sealed heating system	*see* heating system, sealed.
season, heating	*see* heating season.
secondary air	*see* air, secondary.
secondary circuit	*see* circuit, secondary.
secondary energy	*see* energy, secondary.
secondary heating surface	*see* heating surface, secondary.
sectional boiler	*see* boiler, sectional.
Seduct heater	*see* heater, Seduct.
selective central heating	*see* heating, central, selective.
selector switch	*see* switch, selector.
self-acting controller	*see* controller, self-acting.
self-acting variable orifice	*see* valve, self-acting variable orifice.
self-cleaning air filter	*see* air filter, self-cleaning.
self-contained room air-conditioner	*see* room air-conditioner, self-contained.
semi-hermetic compressor	*see* compressor, semi-hermetic.
semi-wetback economic boiler	*see* boiler, economic, semi-wetback.
sensible cooling	Cooling resulting from removal of sensible heat.
sensible heat	*see* heat, sensible.
sensible heat ratio	The ratio of sensible heat gain to total heat gain.
sensor	*see* detector (sensor).

Term	Definition
separator	A machine in which constituents of a flow stream are separated.
separator, centrifugal	A separator that achieves its effect by centrifugal action.
sequence control	*see* control, sequence (or step control).
service tank	*see* daily service tank.
service valve	*see* valve, service.
set point (or **set value)**	The value of the controlled condition to which the automatic control mechanism is set. (Often the same as desired value.)
set value	*see* set point (or set value).
setting to work	The process of setting a static system into motion.
settling chamber	A chamber in a duct or flue in which the cross-sectional area is enlarged so that the gas or air velocity is reduced to cause the precipitation of particulate matter.
severe exposure	*see* exposure, severe.
shade factor	The proportion of a building surface that is shaded from direct solar radiation.
shaft	An enclosed space running vertically through a building and used for conveying air or for accommodating pipes, ducts, cables or for vertical transportation.
shell-and-coil	Pertaining to heat exchangers in which a coil.of tube or pipe is contained in a shell or vessel.
shell-and-tube	Pertaining to heat exchangers in which a nest or bundle of tubes is contained in a shell or vessel.
shell-and-tube condenser	*see* condenser, shell-and-tube.
shell type boiler	*see* boiler, shell type.
sheltered exposure	*see* exposure, sheltered.
shock loss	Energy losses caused by an abrupt change to a flow regime.
short circuit	The path taken by energy (noise, heat, hydraulic, electric, etc.) moving from a high to a low potential by an unintended path, possibly precipitated by a malfunction of components.
short flame burner	A burner designed to produce a short flame by rapid mixing of the air and fuel.
short-time rating	*see* rating, short-time.
shunt	A controlled diversionary path in a fluid or electrical circuit.
shunt valve	*see* valve, shunt.
sight tube liquid level indicator	*see* liquid level indicator, sight tube.
sight tube tank contents gauge	*see* liquid level indicator, sight tube.
signal	The physical quantity used to transmit information.
silencer	An attenuator of sound.
simple source of sound	*see* sound, simple source of.
single duct box	An air terminal unit with a single inlet.
single duct system	*see* system, single duct.
single duct unit	An air terminal, single inlet unit fabricated to form a casing which is internally lined with material having thermal and acoustic properties.

Term	Definition
single inlet fan	*see* fan, single inlet.
single leaf damper	*see* damper, single leaf.
single pipe system	*see* a) system, single pipe. b) heating system, one pipe.
single stage compression	*see* compression, single stage.
sizing, duct	*see* duct sizing.
skirting heating	*see* heating, skirting.
sky radiation	That part of solar radiation scattered back to earth from the atmosphere.
slave control	*see* control, slave.
sleeve	A short length of pipe or duct or other rigid material that is built into a wall or floor to form an aperture through which a pipe or duct is inserted.
slide damper	*see* damper, slide.
slide-rails	Slotted rails secured to the floor or base frame on which the base plate of an electric motor is fixed.
sling psychrometer	*see* psychrometer, sling.
sling wet bulb temperature	*see* temperature, wet bulb, sling.
slot air terminal device	An air terminal device with a rectangular outlet having a large aspect ratio in excess of 10 : 1.
small bore heating system	*see* heating system, small bore.
smoke	Visible cloud of airborne particles derived from combustion or from chemical reaction.
smoke, black	Smoke appearing to be as dark as, or darker than, shade 4, of the Ringelmann chart.
smoke, dark	Smoke appearing to be as dark as, or darker than, shade 2 but less than shade 4, of the Ringelmann chart.
smoke box	A confined space receiving the products of combustion from a bank of smoke tubes.
smoke density	The opacity of smoke.
smoke tube (or **fire tube)**	A tube or relatively small cross section, being part of a boiler through which products of combustion pass.
smut	Particle emitted from a combustion system and comprising a mixture of carbon, ash and a binder such as sulphuric acid.
snow melting system	*see* system, snow melting.
soap test	a) A test for determining hardness of water using a standard soap solution. b) A test for tracing small leaks in pipe joints under slight pressure by wetting with soap solution.
socket	A recess, particularly at the end of a pipe or duct, which is intended to receive a spigot and make a joint.
sodium flame filter test	*see* air filter test, sodium flame.
solar absorption coefficient	*see* absorption coefficient, solar.
solar absorptivity	*see* absorptivity, solar.
solar altitude	The angle of the sun above the horizion.

Term	Definition
solar azimuth	The angle between the horizontal projection of the sun and North.
solar azimuth, wall	The angle between the horizontal projection of the sun and a normal to the wall being considered.
solar collector	A device in which solar radiation is absorbed, converted to heat and removed by the heat transfer fluid.
solar energy	*see* energy, solar.
solar heat gain	*see* heat gain, solar.
solar heating system	*see* heating system, solar.
solar panel	*see* solar collector.
solar protection	Means of preventing unwanted solar energy from entering a structure.
solar radiation	Heat received by the earth from the sun.
solar radiation, diffuse (indirect)	Solar radiation received at a surface by atmospheric reflection and scattering and excluding any direct component.
solar radiation, direct	Solar radiation received by a direct path from the sun to a surface exposed thereto.
sol-air temperature	*see* temperature, sol-air.
solenoid valve	*see* valve, solenoid.
solid fuel boiler	*see* boiler, solid fuel.
solid fuel heating system	*see* heating system, solid fuel.
solution, strong (rich)	In an absorption refrigeration system, a solution with a relatively high concentration of another substance.
solution, weak	In an absorption refrigeration system, a solution with a relatively low concentration of another substance.
soot blower	A device used for cleaning boiler surfaces using steam or air as the blowing medium.
sound	Mechanical vibration, propagated in an elastic medium, of such character as to be capable of exciting the sensation of hearing.
sound, simple source of	A source that radiates sound in an isotropic medium uniformly in all directions under free-field conditions.
sound absorption	a) Damping of a sound wave on passing through a medium or striking a surface. b) The property, possessed by materials, objects or media, of absorbing sound energy.
sound absorption coefficient	Of a surface or material at a given frequency and under specified conditions: the complement of the sound energy reflection coefficient under those conditions, i.e. unity minus the sound energy reflection coefficient of the surface or material.
sound attenuation	The reduction in amplitude or intensity of sound waves arising from absorption or scattering.
sound control	The design of building services so that related noise levels are kept to a level comfortable to the inhabitants.
sound intensity	Of a source: the mean rate of acoustic energy flow through unit area normal to the direction of propagation.
sound power	The total sound energy radiated per unit time from a source.

Term	Definition
sound pressure	The alternating component of the pressure at a point in a sound field.
sound propagation	The wave process whereby sound energy is transferred from one part of a medium to another.
sound reflection coefficient	a) The ratio that the sound energy reflected from a surface or material bears to that incident upon it at a given frequency and under specified conditions. b) The ratio that the sound pressure reflected from a surface or material bears to that incident upon it at a given frequency and under specified conditions.
sound spectrum	The arrangement of components of a complex sound in order of frequency or energy.
sound transmission coefficient	The ratio that the sound energy transmitted through and beyond a surface partition or device bears to that incident upon it.
space heating	*see* heating, space.
sparge pipe	a) Means of providing a cascade of liquid over the outer surface of a heat exchanger. b) A pipe immersed in liquid and provided with holes in the wall along its length to enable a distributed exchange of fluid between that in the pipe and that of the liquid.
specific humidity	*see* humidity, specific.
specific speed	The calculated speed of a turbine (or centrifugal pump) when operating at unit head and unit power; used for comparing different sizes of geometrically similar turbines or centrifugal pumps.
specification	A detailed description, including dimensions and other quantities, of the function, construction, materials and quality of a manufactured article or an engineering project.
specification, performance	A specification expressed only in terms of the performance required from a machine, unit or system.
spectrum, sound	*see* sound spectrum.
spigot	A projecting element, particularly at the end of a pipe or duct, which is intended to enter a socket on an adjacent component to form a joint.
spinning disc air washer	*see* air washer, spinning disc.
spinning disc humidifier	*see* humidifier, spinning disc.
split room air-conditioner	*see* room air-conditioner, split.
split system	*see* system, split.
splitter damper	*see* damper, splitter.
spot cooling	*see* cooling, spot.
spot heating	*see* heating, spot.
spray pond	An arrangement for lowering the temperature of water by evaporative cooling, in which the water is sprayed into the space above a body of water and falls by gravity into it.
spray washer	*see* air washer, spray.
sprayed coil	*see* coil, sprayed.

Term	Definition
spreader stoker	*see* stoker, spreader.
sprinkler stoker	*see* stoker, sprinkler.
spur duct	*see* duct, spur.
stack effect	The pressure in a building caused by the difference between the inside and outside temperatures.
standard density	*see* density, standard.
standby boiler	*see* boiler, standby.
standby equipment	Equipment installed or provided to be capable of satisfying all or a predetermined part of the total load when similar equipment is inoperative.
start button	*see* button, start.
starting current	The initial current drawn by a motor when started.
starting torque	The torque developed by a motor on starting.
static head	Difference between the total fluid pressure and the dynamic pressure, if any.
static pressure	*see* pressure, static.
static regain	The conversion of velocity pressure to static pressure at a suitably designed change section or off-take in a duct system.
static regain method	*see* duct sizing, static regain method.
steady state	The final state of a stable system after any disturbance.
steam	Water in the vapour phase.
steam, dry saturated	Steam at a temperature equal to the boiling point of water at the pressure considered, no liquid water being present.
steam, dryness fraction of	The fractional mass of dry vapour in a unit mass of wet steam.
steam, flash	Steam produced when the pressure of pressurized hot water is reduced.
steam, live	Steam generated purposefully.
steam, superheated	Steam at a temperature above the boiling point of water at the pressure considered.
steam, wet	Saturated steam in the presence of liquid water usually in the form of droplets.
steam accumulator	*see* accumulator, steam.
steam assisted pressure jet oil burner	*see* oil burner, steam (or air) assisted pressure jet.
steam boiler	*see* boiler, steam.
steam heating system	*see* heating system, steam.
steam humidifier	*see* humidifier, steam.
steam injector	*see* injector, steam.
steam jacket	A jacket round a heated vessel which is supplied with live steam.
steam separator	A device in which water is separated from a water and steam mixture.
steam trap	a) A device connected to a steam line to remove condensate automatically.

Term	Definition
	b) A device fitted to steam-heated equipment to pass condensate.
steam trap, bucket	A steam trap in which a bucket shaped member floating on the condensate operates the condensate relief valve.
steam trap, float	A steam trap, in which a hollow float operates the condensate release valve.
steam strap, impulse	A steam trap in which the valve is controlled by the difference in forces produced by steam and condensate.
steam trap, pumping	A steam trap in which steam pressure is used to lift the condensate to the condensate main.
steam trap, thermostatic	A steam trap operating by the difference in temperature between steam and condensate.
step control	*see* control, sequence (or step control).
stoichiometric	A proportion of substances to produce a specific chemical reaction with no excess of reactant or product, such as in combustion with fuel and air close to the chemically correct proportion.
stoker	An apparatus for firing a boiler mechanically.
stoker, chain grate	A mechanical stoker consisting of a moving endless chain conveyor running over mechanically driven sprockets with horizontal axes. The fuel is delivered on to the upper surface at the front and burns during its passage through the furnace, air being supplied through the spaces between the links and the ash being discharged at the rear end.
stoker, coking	A mechanical stoker in which the fuel is delivered by a ram to the front grate and distilled, the residual coke burning as it is conveyed along the grate by reciprocating movement of the bars and the ash being discharged at the rear end.
stoker, gravity feed	A stoker in which the fuel travels by gravity from an external source on to a static grate.
stoker, spreader	A mechanical stoker in which the fuel is spread on to the grate by a number of rotating distributors, generally associated with a forward-travelling grate or a grate through which ash is discharged.
stoker, sprinkler	A mechanical stoker in which the fuel is distributed over a fixed or moving grate by means of an adjustable spring-operated shovel or by the action of a rotating distributor.
stoker, travelling grate	A type of chain grate stoker in which two or more endless conveyor chains support bars or grids that form the grate surface.
stoker, underfeed	A mechanical stoker with a retort into which the fuel is fed at the bottom by a screw or ram, and air for combustion is introduced through tuyères near the top.
stop button	*see* button, stop.
stop and reset button	*see* button, stop and reset.
storage calorifier	*see* calorifier, storage.
straight way cock	*see* cock, straight way.
strainer	A device to remove solid particles from fluid traversing the device.

Term	Definition
stratification	The formation of layers at different temperatures in a heated or cooled fluid that is not well mixed.
streamline flow	*see* flow, laminar.
streamlined zone	a) A zone in which viscous flow occurs. b) Passages or ducts designed to avoid geometric abruptness (discontinuities) that causes flow separation; with energy losses as a consequence of the turbulence or poor heat transfer thus caused.
strong solution	*see* solution, strong (rich).
structure heat loss	*see* heat loss, structure.
stub duct	*see* duct, stub.
stuffing box	A cylindrical recess, e.g. in a cylinder cover, at a point at which a shaft emerges. It is provided with a gland and packing to achieve a pressure-tight joint.
sub-atmospheric heating system	*see* heating system, sub-atmospheric.
suction lift	The pressure below atmospheric that can be created in the inlet suction pipe of a fully primed pump.
suction pressure	*see* pressure, suction (back).
suction valve	*see* valve, suction.
summer boiler	*see* boiler, summer.
sunbreaker	A means, external to a building, to reduce solar heat gain.
superheated refrigerant vapour or gas	Vapour at a temperature higher than the saturation temperature at the existing pressure.
superheated steam	*see* steam, superheated.
superheater	An apparatus consisting of a number of tubes in which steam from a boiler is heated beyond the temperature of saturation.
supply air	*see* air, supply.
supply temperature differential	*see* temperature differential, supply.
supply ventilation	*see* ventilation, supply.
surface, heating	*see* heating surface.
surface coefficient	A coefficient relating the condition and material of a surface to the heat flow through it under conditions of small temperature differences.
surface conductance	Rate of heat transmission to or from unit area of a surface per unit difference of temperature between the surface and the fluid in contact with it.
surface heater	*see* heater, wall mounting, surface.
surface resistance	The reciprocal of surface conductance.
surface temperature	*see* temperature, surface.
surface wall mounting heater	*see* heater, wall mounting, surface.
switch	A device for completing or interrupting an electrical or fluidic circuit.
switch, air flow	A switch that incorporates a mechanism capable of detecting a flow of air. The mechanism operates the switch automatically at a preset air flow rate.

Term	Definition
switch, auxiliary	A switch operated by a device that governs the operation of another interrelated device or system.
switch, change pole	A switch designed to connect the windings of a change pole motor so as to obtain the desired speed with the motor otherwise electrically disconnected.
switch, float	A device incorporating a float that operates a switch in response to changes in the level of a liquid.
switch, isolating	*see* isolator.
switch, limit	A switch arranged to operate at a preselected value of some variable. The switch is connected to a suitable mechanism intended to prevent further change of the variable beyond the preset value.
switch, master	A switch to which the operation or function of one or more other switches is subservient.
switch, master stop	A switch that, when operated, will cause a circuit to be opened and which will prevent reclosing until it is deliberately reset.
switch, on/off/auto	A manually operated selector switch used in a circuit normally switched automatically, to stop the automatic operation and positively open or close the circuit as required.
switch, pressure	A switch that operates at a predetermined value of pressure.
switch, selector	A switch for connecting several separate circuits in predetermined combinations.
switch, time	A switch actuated by a timing mechanism and arranged to carry out a preselected programme of switching actions, which is repeated at intervals determined by the timing mechanism.
system	A basic concept of equipment or appliances, connected, associated or independent so as to form a complex unity.
system, air-water	An air-conditioning system in which treatment of air delivered to a space occurs in terminal units, the heat exchange being effected by water and air supplied from separate sources.
system, all air	An air-conditioning system whereby conditioned air from a separate source is delivered to a space by means of ductwork.
system, all water fan coil	A system in which heat transfer is effected by using a fan to move air over coils in which hot or cold water is flowing.
system, balancing of	The process of adjusting the rate of flow in each circuit of a multi-circuit system to match the design value.
system, blow through	An air-conditioning or ventilation system with the heater and/or cooler on the discharge side of the fan.
system, cascade	A refrigerating system having two or more separate refrigerant circuits, in which the evaporator of one circuit cools the condenser of the other (lower temperature) circuit.
system, closed	A system in which fluid flows without addition or abstraction of fluid.
system, constant volume	An air-conditioning system designed to maintain conditions in the space served within prescribed limits by the adjustment of the entering air temperature rather than by the adjustment of the volume of air circulated.

Term	Definition
system, dual duct	A system in which a central plant produces conditioned air at two temperature and humidity levels. The air is supplied through two independent ductwork systems to the points of use where mixing is effected.
system, dust extract	A system for removing and collecting dust from a space.
system, exhaust	A system for removing interior air from an occupied space causing air from outside the space to enter.
system, four pipe	a) An air-conditioning system in which separate flow and return water pipes are provided for both heating and cooling purposes. b) A heating system in which separate flow and return pipes are provided for both heating and hot water purposes.
system, heating	*see* heating system.
system, high velocity	A ventilation or air-conditioning system in which air is distributed in the main ducts at velocities in excess of 15 m/s.
system, hold-over	A thermal storage system in which the latent or sensible heat of a substance, or the sensible heat capacity of fluid, is employed to absorb heat.
system induction	An air-conditioning system in which preconditioned air from a central plant is delivered to heat exchanger assemblies at sufficient pressure to induce recirculated air over the heat exchangers and supply the mixed air to the space being conditioned.
system, microbore	*see* heating system, microbore.
system, multi-zone	A heating or an air-conditioning system with several independently controlled sets of heaters and/or coolers each serving a zone.
system, plenum	A supply system of ventilation that provides air at a positive pressure.
system, recool	A system of separately controlled coolers forming the last stage of an air-handling installation.
system, refrigerating	*see* refrigerating system.
system, reheat	A system of separately controlled heaters forming the last stage of an air-handling installation.
system, reverse return	A two-pipe distribution system with the flow and return arranged to have the same fluid path length for each connected appliance.
system, single duct	An all-air air-conditioning system with single duct air terminal units supplied with conditioned air from a central plant.
system, single pipe	An oil supply system with a single pipeline from an elevated storage tank to feed the burners.
system, snow melting	A system for heating surfaces to melt deposited snow or ice.
system, split	A small refrigeration system in which the high pressure side (compressor and condenser) are separate and remote from the low pressure side (evaporator).
system, three-pipe	a) Circulating system in which there are separate flow pipes for heating and hot water supply respectively, and a return pipe common to both.

Term	Definition
	b) Air-water air-conditioning system having separate flow pipes for hot water and chilled water and a common return pipe.
system, total energy	The provision of all energy requirements for a building or complex of buildings from a single variety of fuel.
system, two-pipe	Circulating system in which the flow and return pipes are run side by side, and radiators or other terminal units are connected between the two.
system, variable volume	An air-conditioning system that controls space temperature by varying the volumetric flow rate through the terminal units.
tachometer	An instrument for measuring the speed of rotation of rotating machinery.
take-off	A connection to a main supply duct or pipe that enables some fraction of the flow through the duct or pipe to be diverted for a subsidiary service.
tangential flow fan	*see* fan, cross flow.
tank	*see* cistern.
tank, daily service	*see* daily service tank.
tank, expansion	*see* expansion tank.
tank contents gauge	*see* gauge, tank contents.
tapping	A female screwed connection in a boiler, heater, tank, or other unit for connecting a pipe or nipple.
tapping, downstream	A small hole in a pipe or duct at a specified distance downstream of a flow-measuring device, or other unit by which to measure the static pressure.
tapping, flow	a) A tapping in a boiler for connecting the outlet pipe from the boiler.
	b) A tapping in a heater or other unit for the inlet pipe to the unit.
tapping, return	a) A tapping in a boiler for connecting the return pipe to the boiler.
	b) A tapping in a heater or other unit for the outlet pipe from the unit.
tapping, upstream	A small hole in a pipe or duct at a specified distance upstream of a flow-measuring device, or other unit by which to measure the static pressure.
tee	A pipe or duct fitting with a branch flow leaving or joining the main flow.
tee, square	A tee in which the branch joins into the main at an angle of 90°.
tee, sweep	A tee in which the branch has a shaped entry into the main to assist flow.
temperature	The degree of warmth or coldness measured with respect to an arbitrary zero or to the absolute zero.
temperature, air	Dry bulb temperature (unless stated otherwise).
temperature, ambient	The temperature of the air surrounding the room, building, or equipment under consideration.
temperature, boiler flow	The temperature of the water outlet from a hot water boiler.

Term	Definition
temperature, controlled	a) The value of the temperature of.a system that is maintained by an automatic control system. b) The temperature at which a room or building is maintained by regulation of the heat supply in relation to heat losses.
temperature, corrected effective	An empirical index of comfort that takes account of dry bulb and wet bulb temperatures, of radiant heat (as measured by a globe thermometer) and of air movement.
temperature, critical	*see* critical temperature.
temperature, dewpoint	The temperature of a mixture of air and water vapour at which further cooling results in condensation of the water vapour from the air.
temperature, dry bulb	The temperature indicated by a dry temperature-sensing element (such as the bulb of a mercury-in-glass thermometer) shielded from the effects of radiation.
temperature, dry, resultant	The temperature registered by a thermometer at the centre of an externally blackened sphere 150 mm diameter, being a function of air and mean radiant temperatures and velocity.
temperature, effective	An empirical index of comfort that takes account of dry bulb and wet bulb temperatures and air movement.
temperature, environmental	The temperature of a hypothetical uniform environment (with surroundings and air at equal temperature) that would have the same rate of heat transfer through a building element as occurs under prevailing conditions.
temperature, equilibrium	The temperature reached when sensible heat flow is zero.
temperature, equivalent	An empirical index of comfort that takes account of dry bulb temperature and of radiant heat (as measured by a globe thermometer) and of air movement.
temperature, external	The temperature measured at a specified location on the outer surface of an enclosure.
temperature, external environmental	*see* temperature, sol-air.
temperature, flow	The temperature at the inlet to a system, plant or equipment.
temperature, globe	*see* temperature, dry, resultant.
temperature, internal	The temperature in an enclosure or occupied space.
temperature, internal environmental	*see* temperature, environmental.
temperature, mean radiant	The temperature approximating to the area weighted mean temperature of the surfaces bounding the relevant space, i.e. the sum of the products of surface temperature and area for each surface divided by the sum of the surface areas.
temperature, return	The residual temperature of a heating or cooling medium after passing through all heater or cooler units and on its way back to the heat generator.
temperature, sol-air	The outside air temperature which, in the absence of solar radiation, would give the same temperature distribution and rate of heat transfer through the walls or roof of a building as exists with the actual outdoor temperature and the incident solar radiation.

Term	Definition
temperature, surface	The temperature of a surface such as a wall, radiator, pipe, etc.
temperature, wet bulb	Air temperature indicated by a sensing element kept wet (usually by a wick), the indicated temperature thus being related to the rate of evaporation from the wetted bulb.
temperature, wet bulb, screen	The temperature indicated by a wet bulb thermometer in stationary air.
temperature, wet bulb, sling	The temperature indicated by a wet bulb thermometer mounted in a sling or whirling psychrometer.
temperature, wet bulb, thermodynamic	The equilibrium temperature that would be attained by moist air in intimate contact with a water surface assuming no heat interchange with an external source other than the enthalpy of the added moisture, the temperature of the water being deemed to be constant and equal to the air temperature finally attained.
temperature controller	That type of controller in which the measured variable is temperature.
temperature difference	The difference between the temperatures of two substances, surfaces or environments involving transfer of heat.
temperature difference, log. mean	The difference in temperature between two points divided by the Naperian logarithm of the temperature ratio (usually applied to the entering and leaving conditions of a heat exchanger).
temperature difference, mean	The average of the difference in variations in value over an arbitrarily chosen period of the temperatures inside and outside a building.
temperature differential, supply	The difference between supply and room temperature.
temperature differential, within occupied zone	The difference in temperature between two specified points within an enclosure.
temperature drop	a) The temperature difference between the flow and return connections from a heating system or a heating appliance. b) The temperature difference along a length of pipe or duct delivering heat.
temperature gradient	The variation of temperature in an enclosure with height, or along a length of duct or pipe, or through a substance.
temperature of adiabatic saturation	*see* temperature, wet bulb, thermodynamic.
temperature swing	The variation in temperature between the onset and cessation of heat input or cooling to a space.
temporary hardness	*see* hardness of water, temporary.
terminal	That portion of a circuit or piece of apparatus that is intended for the reception of conductors by means of which it may be connected electrically to another circuit or piece of apparatus.
terminal, earth	A terminal provided on the frame of a machine or piece of apparatus for the purpose of making a connection to earth.
terminal air filter	*see* air filter, terminal.
terminal velocity	*see* velocity, terminal.
test bench	The location of test apparatus in which a unit to be tested is installed.
test certificate	A document signed by the senior test engineer in which is given the data obtained from test and a statement of the quality/accuracy of the test techniques.

Term	Definition
test pressure	A pressure applied to any machine or unit in excess of the maximum working pressure.
testing	The evaluation of the performance of a commissioned installation or of a machine.
thermal bridge	*see* heat bridge.
thermal capacity	The ability of a body to absorb heat; numerically the product of its mass and its specific heat.
thermal conductance	The thermal transmission through unit area of a slab of material or of a structure divided by the temperature difference between the "hot" and "cold" faces in "steady state" conditions [W/(m^2 K)].
thermal conductivity	The quantity of heat in the "steady state" condition passing in unit time through an area forming part of a slab of uniform material of infinite extent of unit thickness when unit temperature difference is established between its faces [W/(m K)].
thermal diffusivity	Thermal conductivity divided by heat capacity per unit volume (m^2/s).
thermal efficiency	*see* efficiency, thermal.
thermal efficiency, seasonal	Thermal efficiency assessed for an annual cycle of operation.
thermal energy	*see* energy, thermal.
thermal inertia	The property of a material or structure to delay the effect of a change of thermal gradient.
thermal insulation	*see* insulation, thermal.
thermal overload relay	*see* relay, thermal overload.
thermal resistance	The reciprocal of thermal conductance (m^2 K/W).
thermal resistivity	The reciprocal of thermal conductivity (m K/W).
thermal shock	The physical effect on persons or materials resulting from rapid temperature change.
thermal storage heating system	*see* heating system, thermal storage.
thermal transmission	The passage of heat through a structure or material.
thermal transmittance (*U*-value)	The thermal transmission through unit area of a given structure divided by the difference between the effective ambient temperature on either side of the structure in steady state conditions [W/(m^2 K)].
thermal wheel	A rotary air-to-air heat transfer device.
thermodynamic wet bulb temperature	*see* temperature, wet bulb, thermodynamic.
thermo-electric cooling	A method of refrigeration utilizing the "Peltier effect", in which electric current passed through a junction of two dissimilar conductors or semi-conductors causes a reduction of temperature at the junction.
thermo-electric module	An assembly of thermo-electric junctions in series, the cold junctions all on one side and the warm junctions all on the other side.
thermograph	A device that measures and records air temperature.

Term	Definition
thermohygrograph	A device that measures and records simultaneously air temperature and relative humidity.
thermometer	A device for measuring temperature.
thermometer, dry bulb	A thermometer in which the bulb is dry, bare and exposed to the atmosphere.
thermometer, globe	A thermometer with the sensing element enclosed in a 150 mm diameter globe, externally matt black, which enables mean radiant temperature to be measured.
thermometer, maximum/minimum	A thermometer in which the indicator is capable of moving two markers that retain their positions at the extremes of the indicator's movement.
thermometer, liquid-in-glass	A liquid expansion thermometer in which the bulb and part of the stem are filled with a thermometric liquid while the remaining space in the stem is vacuous or contains, in some cases, an inert gas under pressure. The stem is calibrated to relate the end of the liquid position to a temperature scale.
thermometer, wet bulb	A thermometer in which the bulb is covered with wet muslin, cotton or similarly absorbent wick.
thermostat	A temperature-sensing device that forms part of a control system.
thermostatic control	A control action in which the controller is a thermostat.
thermostatic expansion valve	*see* valve, thermostatic expansion.
thermostatic mixing valve	*see* valve, thermostatic mixing.
thermostatic (steam) trap	*see* steam trap, thermostatic.
three-pipe system	*see* system, three-pipe.
three-term controller	*see* controller, three-term.
three-way cock	*see* cock, three-way.
three-way mixing valve	*see* valve, mixing, three-way.
threshold value	a) A limit of an environmental condition to which persons may be exposed repeatedly without adverse effect. b) Limit below which a stimulus ceases to be perceptible.
throttling	An irreversible adiabatic process wherein pressure is lowered by expansion without work.
throttling range	The proportional band expressed as a value and not as a percentage of the measured variable.
throttling valve	*see* valve, throttling.
throw	The distance an air stream travels on leaving an outlet before its velocity is reduced to a specific value.
throw-away air filter	*see* air filter, throw-away.
tidal energy	*see* energy, tidal.
time clock (deprecated)	*see* switch, time.
time delay relay	*see* relay, time delay.
time lag	The delay in reponse to a change of the input condition.
time switch	*see* switch, time.
tip speed	The linear velocity of the tip of a fan or pump impeller.

Term	Definition
ton of refrigeration	A unit of heat quantity equivalent to the heat absorbed in melting one short ton (2 000 lb) of water ice in 24 h, i.e. 12 000 Btu/h (≈ 3.5 kW).
topping-up	The addition of liquid to a storage tank in order to restore the level to a prearranged mark.
total energy	a) The sum of positional, velocity, pressure and thermodynamic energies. b) The use of a single fuel to produce energy in a variety of forms for use in a building.
total energy system	*see* system, total energy.
total head	The sum of positional, velocity and pressure energies of a fluid expressed in units of length.
total heat	*see* enthalpy.
total pressure	*see* pressure, total.
tracer gas	A non-toxic gas used with an infra-red gas analyzer to determine the rate of air interchange within a space.
transfer air	*see* air, transfer.
transfer pump	*see* pump, transfer.
transmission, thermal	*see* thermal transmission.
transmittance, thermal	*see* thermal transmittance.
transmission coefficient, sound	*see* sound transmission coefficient.
transmission loss	The loss of energy incurred in transferring it to another place.
transmissivity	The ratio of the energy flow rate reflected by a body to the energy flow rate it receives by radiation.
travelling grate stoker	*see* stoker, travelling grate.
trench	An opening formed in the ground or below the floor of a building in which to run pipes or cables.
trunk duct	*see* duct, trunk.
tundish	A shallow vessel with an outlet at the base to permit visual inspection of leakage, overflow or waste directed into it.
turbidity	Suspended insoluble matter in liquid including any coarse particles that settle on standing.
turbine flow meter	*see* meter, turbine flow.
turbo compressor	*see* compressor, centrifugal.
turbulent flow	*see* flow, turbulent.
turndown	The fraction of maximum output to which a system can be regulated.
turndown ratio	The ratio of maximum output to turndown.
turning vanes	Guide vanes in the bend of a duct to direct the flow towards the outlet of the bend.
two-pipe system	*see* system, two-pipe.
two-position control	*see* control, two-position (or on-off control).
two-term controller	*see* controller, two-term.
***U*-value**	*see* thermal transmittance.

Term	Definition
underfeed stoker	*see* stoker, underfeed.
union	A pipe fitting which forms a screwed joint that can be uncoupled without dismantling adjacent pipework.
unison control	*see* control, unison.
unit, compressor	*see* compressor unit.
unit, condensing	*see* condensing unit.
unit air heater	*see* heater, unit air.
unit heater	*see* heater, unit air.
unloader	*see* equalizer (unloader).
upstream tapping	*see* tapping, upstream.
useful energy	*see* energy, useful.
useful heat	*see* heat, useful.
vacuum gauge	*see* gauge, vacuum.
vacuum heating system	*see* heating system, sub-atmospheric.
valve	A device that regulates fluid flow.
valve, automatic air	A valve used to vent air from a system containing liquid.
valve, automatic control	A valve that is part of an automatic control system and is designed to provide special characteristics between valve movement and valve area for the purpose of regulating a process variable.
valve, back pressure regulation	A valve designed to maintain a constant back pressure irrespective of the flow rate.
valve, balancing	A pressure-tapped two- or three-way valve.
valve, ball	a) A form of shut-off device having a ported ball that can be turned to move its port or ports relative to the body seat ports to control the flow of fluid. b) A non-return valve in which a ball seats on an orifice within the valve body.
valve, ball float	A valve used to maintain a liquid level in a tank by means of a hollow ball floating on the surface of the liquid.
valve, block	A valve that controls a section of equipment or building.
valve, blow down	A control valve fitted either at a point below the minimum water level in the steam drum of a boiler or at the lowest point of the boiler.
valve, butterfly	A valve in which a disc is rotated about a diametric axis of a cylinder to vary the aperture.
valve, bypass	A valve in a bypass circuit that controls the proportion of flow therein.
valve, check	A valve that prevents reversal of flow in the pipeline in which it is inserted.
valve, crown	A stop valve mounted direct onto the outlet from a steam boiler.
valve, diaphragm	A valve incorporating a diaphragm that isolates the operating mechanism from the fluid passing through the valve.
valve, discharge	In a compressor, the valve that allows compressed refrigerant gas to flow from the cylinder.

Term	Definition
valve, diverter	A three-port valve used to divert a common flow in varying proportions between two alternative outlets.
valve, double beat	A hollow cylindrical valve for controlling high pressure flows. The valve has seatings, at the two ends exposed to pressure, that are of only slightly different area, so that the valve is nearly balanced and easily operated.
valve, double disc	A gate valve in which the gate consists of two discs that are forced apart by a spreading mechanism at the point of closure against both parallel body seats.
valve, double regulating	A type of flow regulating valve where the maximum opening can be preset to limit the amount of available handwheel operation.
valve, drain	A valve or cock used to drain liquid from a system.
value, draw-off	A valve or cock used to take liquid from a system.
valve, dump	A valve so arranged that it enables the contents of a system or a discrete part of a system to be emptied to waste.
valve, expansion	A valve for controlling the flow of liquid refrigerant to an evaporator.
value, feed-check	A valve that prevents reversal of the flow of feed water into a boiler.
valve, fire	A valve for the specific purpose of preventing fire or avoiding hazard in the event of fire, e.g. the weight-operated valve for shutting off a supply of oil fuel in the event of fire.
valve, float	A valve actuated by a float that is responsive to a change in liquid level.
valve, float, *high* **pressure**	A float valve that controls the flow of liquid refrigerant to the evaporator, the float being borne by liquid on the *high* pressure side of the orifice.
valve, float, *low* **pressure**	A float valve that controls the flow of liquid refrigerant to the evaporator, the float being borne by liquid on the *low* pressure side of the orifice.
valve, flow-regulating	A valve which, by manual or automatic means, controls rate of flow.
valve, foot	A check valve fitted to the bottom of a suction pipe.
valve, fusible link	The valve cap in a sprinkler head, held closed by a system of levers and retained in position by soldered links.
valve, gate	A valve that provides a straight-through passage for the flow of fluid and in which the passage can be closed by a component (gate) which is guided by the body seats on an axis at right angles to that of the body ends.
valve, globe	A valve in which the stem raises or lowers a plug (or disc) onto a seat (or between two seats) fixed to the valve body, thus varying the aperture(s) in the valve.
valve, governor	A valve used for the automatic regulation of pressure in a gas stream operated by a pressure-sensing device.
valve, isolating	A valve used to shut off flow completely.
valve, lock-shield	A regulating valve used on a radiator that has a means of preventing unathorized interference with the valve setting.

Term	Definition
valve, mixing	A multiport port valve in which inlet flows differing in temperature are mixed whilst maintaining constant rate of flow from the outlet port.
valve, mixing, three-way	A mixing valve in which two inlet flows are mixed.
valve, mixing, four-way	A mixing valve in which three inlet flows are mixed.
valve, mixing, thermostatic	*see* valve, thermostatic mixing.
valve, needle	A form of regulating valve in which the aperture area is varied by a movable conical component.
valve, packless	A valve without gland packing.
valve, parallel slide	A gate valve in which the gate consists of one or two discs, without spreading mechanism, which slide between parallel body seats.
valve, pilot	A valve regulating fluid flow in a servo system.
valve, pinch	A straight-through valve in which the valve element consists of a flexible sleeve that is distorted to control the flow of the fluid.
valve, plug	A form of shut-off device having a plug that can be turned to move its port or ports relative to the body seat ports to control the flow of fluid.
valve, plug, lubricated	A plug valve in which lubricant is injected under pressure between the plug face and body seal.
valve, pressure control	A valve the function of which is to regulate pressure and which is operated by a signal from a pressure-sensing device.
valve, pressure-reducing	A valve for giving a predetermined downstream pressure.
valve, pressure-regulating	A valve for monitoring a predetermined pressure in a particular part of the system.
valve, pressure-retaining	A valve designed to maintain a specified relationship between output and pressure.
valve, radiator	A valve used to control fluid flow through a radiator.
valve, reducing	*see* valve, pressure-reducing.
valve, regulating	*see* valve, flow-regulating.
valve, relief	An automatic pressure-relieving device.
valve, safety	A self-acting valve that automatically opens to prevent a predetermined safe pressure being exceeded.
valve, screw-down stop	A valve in which the disc is lifted from, and lowered on to, the body seat by a stem whose axis is perpendicular to the face of the seat.
valve, screw-down stop, angle	A valve, generally having a spherical body, in which the body ends are at right angles to each other and in which the axis of the stem is in line with that of one body end.
valve, screw-down stop, oblique	A valve, generally having a spherical body, in which the body ends are in line with each other and in which the axis of the stem is oblique to that of the body ends.
valve, self-acting, variable orifice	A type of flow control valve in which the inlet and outlet are connected by a passage of which the cross-sectional area can be varied by movement of the valve member.

Term	Definition
valve, service	A manually operated stop valve at the suction inlet or the discharge outlet of a compressor intended for use only for service or maintenance operations.
valve, shunt	A valve used to divert all or part of a flow to a bypass.
valve, solenoid	A valve in which the movement of the valve member is operated by a solenoid.
valve, suction	In a refrigerant compressor, the valve that allows refrigerant vapour to enter the cylinder.
valve, thermostatic diverting	A multiport valve that varies the proportion in which a flow is divided in response to a signal from a thermostat.
valve, thermostatic expansion	An expansion valve in which the position of the stem or needle is determined by the superheat at the evaporator outlet.
valve, thermostatic mixing	A multiport valve that varies the proportion in which two flows are mixed in response to a signal from a thermostat.
valve, throttling	A valve used to control flow by means of a fixed or variable constriction within the valve.
valve positioner	A device the purpose of which is to provide a definite relationship between a controller output signal and a valve stem position.
vaporizing oil burner	*see* oil burner, vaporizing.
vapour, saturated	*see* saturated vapour.
vapour barrier	A moisture-impervious layer applied to the surfaces enclosing a space, or to the external surface of thermal insulation to limit moisture migration.
vapour compression refrigeration system	*see* refrigerating system, vapour compression
vapour pressure	*see* pressure, vapour.
vapour pressure, saturated	*see* pressure, saturated vapour.
variable pitch fan	*see* fan, axial flow, variable pitch.
variable volume system	*see* system, variable volume.
velocity, axial	The velocity on the centre line of a pipe or duct.
velocity, capture	A velocity at which air picks up solid particles.
velocity, efflux	The velocity of gases issuing from a chimney outlet.
velocity, face	The axial velocity of air entering or leaving a given effective face area.
velocity, free area	The air velocity obtained by dividing the total volume flow rate by the sum of the minimum areas of the openings through which air can pass.
velocity, local air	*see* local air velocity.
velocity, terminal	The air stream velocity at the end of the throw.
velocity contour	A line showing the variation in fluid velocity with increase in distance from a given point of suction.
velocity head	The kinetic energy per unit mass of the fluid resulting from its velocity.
velocity head factor	A correction used in flow calculations to allow for the fact that fluid upstream of an obstruction or constriction is not at rest.

Term	Definition
velocity pressure	*see* pressure, velocity.
velocity profile	A curve showing the relationship between the radius or distance of a point in a pipe or duct and the local mean valocity component at that point.
velocity reduction method	*see* duct sizing, velocity reduction method.
vent	A device permitting fluid flow in order to maintain the balance of pressure between the atmosphere and the system.
ventilation	The provision of air to an enclosed space, sufficient for the needs of the occupants or the process.
ventilation, cross-	*see* cross-ventilation.
ventilation, exhaust	Ventilation in which the air is discharged to atmosphere.
ventilation, extract	Mechanical ventilation removing air from an enclosed space directly or through ducting.
ventilation, industrial exhaust	The removal of contaminants and/or heat from the atmosphere by exhaust local to their source rather than by general ventilation.
ventilation, mechanical	Ventilation by means of one or more fans.
ventilation, natural	Ventilation using only natural motive forces such as wind pressure or differences in air density.
ventilation, supply	Mechanical or natural ventilation providing air to an enclosed space directly or through ducting.
ventilation heat loss	*see* heat loss, ventilation.
venturi meter	*see* meter, venturi.
vertical boiler	*see* boiler, vertical.
vertical cross-tube boiler	*see* boiler, vertical, cross-tube.
vessel, air	*see* air vessel.
vessel, expansion	*see* expansion vessel.
vibrating grate	*see* grate, vibrating.
vibration	Low frequency oscillatory motion.
vibration control	The use of methods of structural design and other techniques to achieve acceptable vibration levels in buildings.
viscous air filter	*see* air filter, viscous.
viscous flow	*see* flow, laminar.
volume controller	A control for maintaining a predetermined volume of air flow through ductwork in relation to the thermal load on the system.
volumetric efficiency	*see* efficiency, volumetric.
wall flame oil burner	*see* oil burner, rotary vaporizing (wall flame type).
wall mounting heater	*see* heater, wall mounting.
wall solar azimuth	*see* solar azimuth, wall.
warm air heating unit	*see* heating unit, fan-assisted warm air.
warmth	Comfortable heat.
warning pipe	An overflow pipe fitted to cisterns, etc., to warn of a defective control.
washer, air	*see* air washer.

Term	Definition
waste energy	*see* energy, waste.
waste heat	*see* heat, waste.
waste heat boiler	*see* boiler, waste heat.
water, feed	The water, previously treated to remove air and impurities, that is supplied to a boiler for evaporation.
water, hardness of	*see* hardness of water.
water, make-up	*see* make-up water.
water, natural	Untreated water.
water, raw	Water untreated by the user.
water softening	A process in water treatment for the reduction of hardness.
water chiller	*see* chiller, water.
water cooled condenser	*see* condenser, water cooled.
water cooled room air-conditioner	*see* room air-conditioner, water cooled.
water cooler	*see* cooler, water.
water hammer	Sharp hammerlike blow or blows from a steep-fronted pressure wave in water, caused by the sudden stoppage of flow in a long pipe or by the changes of direction of slugs of water passing down a steam pipe.
water recooler	*see* cooling tower.
water transport factor	The ratio of sensible heat change in the circulating water to the total power input to all pump motors in the circulating system.
water treatment	The removal, reduction or control of hardness, impurities and other substances in natural water.
water tube	A tube of small cross section, being part of a boiler through which water and steam circulate.
water-tube boiler	*see* boiler, water-tube.
weak solution	*see* solution, weak.
weather factor	A fractional number based on the number of degree days at a particular locality used in estimating the probable fuel consumption of a heating system.
wet air filter	*see* air filter, wet.
wet bulb temperature	*see* temperature, wet bulb.
wet bulb thermometer	*see* thermometer, wet bulb.
wet compression refrigerating system	*see* refrigerating system, wet compression.
wet steam	*see* steam, wet.
wetback economic boiler	*see* boiler, economic, wetback.
wild heat	Uncontrolled heat that is absorbed by, or generated within, an enclosure.
wind energy	*see* energy, wind.
working pressure	*see* pressure, working.
working zone	*see* zone, working.

Term	Definition
zone	A space or group of spaces with sufficiently similar thermal characteristics to enable the required internal conditions to be maintained by a single control system or a single element of a comprehensive control system.
zone, comfort	*see* comfort zone.
zone, dead	The band within which a change of value of an input signal (e.g. control condition) to an element or system may take place without causing any perceptible change in output signals.
zone, exterior	A zone of a building that is predominantly affected by external changes (such as temperature, solar effect and wind) acting through the walls and roof rather than by changes within the building.
zone, interior	A zone of a building that is substantially unaffected by changes of conditions outside the building.
zone, occupied	*see* occupied zone.
zone, perimeter	A zone of a building that is predominantly affected by external changes (such as temperature, solar effect and wind) acting through one or more walls of the building.
zone, working	An occupied zone within which desired temperatures should be maintained.
zone control	Independent control of a section of a system.

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