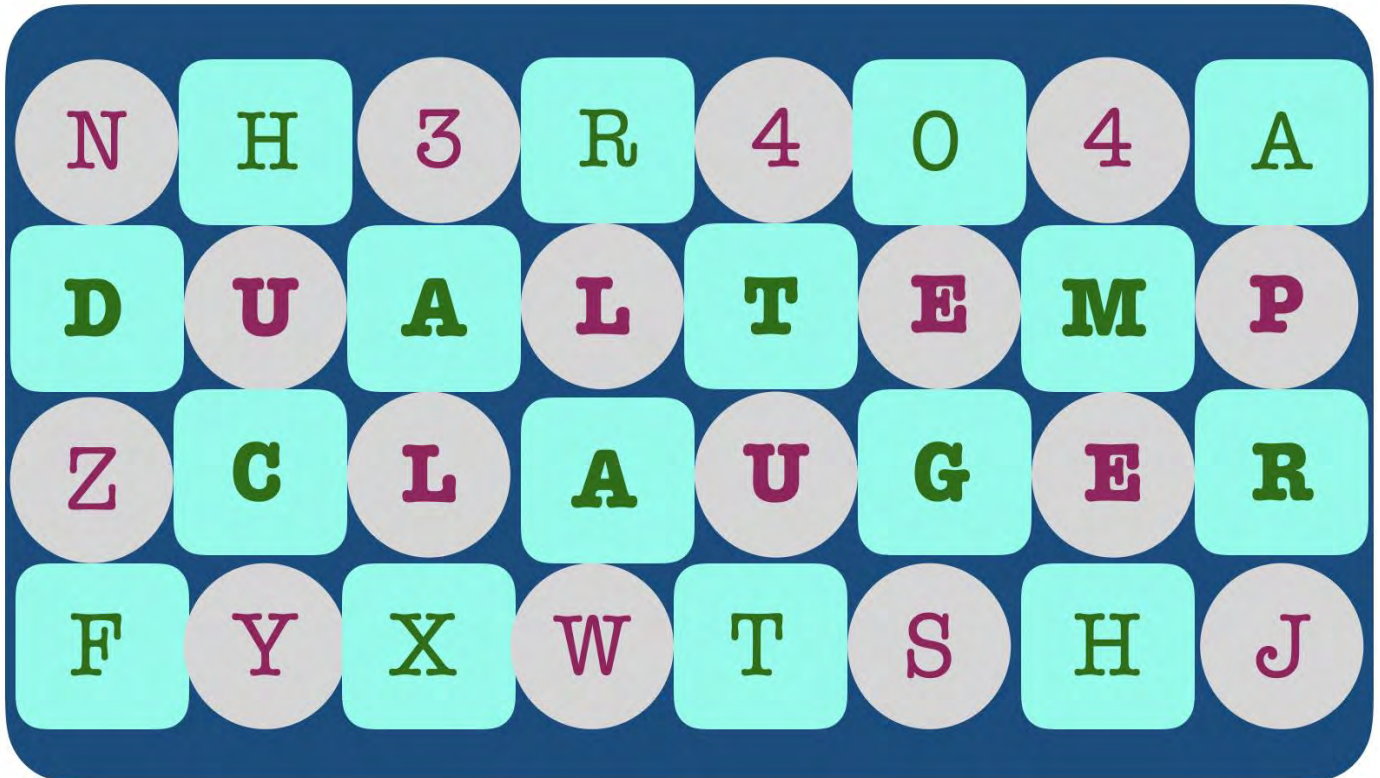


## AMMONIA REFRIGERATION TERMINOLOGIES AND ACRONYMS



PUBLISHED BY DTC ENGINEERS

January 2020

DUALTEMP CLAUGER

4301 S. PACKERS AVE, CHICAGO, IL 60609

[www.dualtempclauger.com](http://www.dualtempclauger.com)



## AMMONIA REFRIGERATION TERMINOLOGIES AND ACRONYMS

### A-B-C-D-E-F-G-H-I-J-K-L-M-N-O-P-Q-R-S-T-U-V-W-X-Y-Z

TERMS	DEFINITIONS
1% NH <sub>3</sub>	10,000 ppm
29 CFR 1910.119	OSHA's Process Safety Management Standard 29 CFR 1910.119
40 CFR 68	EPA's Risk Management Plan Standard 40 CFR Part 68
AA	Anhydrous Ammonia
AAD	OSHA's Assistant Area Director
AC	Alternating Current. It is a type of current where the polarity is perpetually reversing, causing the directional flow in a circuit to reverse at regular intervals
ACC	Accumulator-prevents liquid from entering the suction compressor. It is also referred to as the Suction Accumulator
ACCA	ACCA is a non-profit association whose membership includes more than 60,000 professionals and 4,000 businesses in the indoor environment and energy services community. Website: <a href="http://www.acca.org">www.acca.org</a>
ACGIH	American Conference of Government Industrial Hygienists
Acoustical	The science of sound, relating to sound, or a sense of hearing
Actuator	An Actuator is the portion of a regulating valve that converts mechanical fluid, thermal energy, or electrical energy into mechanical motion to open or close valve seats

TERMS	DEFINITIONS
<b>AD</b>	OSHA’s Area Director
<b>ADB</b>	Ammonia Data Book by IIAR
<b>AEV</b>	Valve Identification for Ammonia Expansion Valve
<b>AFUE</b>	Annual Fuel Utilization Efficiency. It is a measurement used to rate furnace efficiencies by dividing the ratio of heat output by heat input
<b>AGA</b>	American Gas Association, Inc.
<b>AHJ</b>	Authority Having Jurisdiction. It is defined as the organization, office, or individual responsible for approving layout drawings, equipment, an installation or a procedure or enforcing the requirements of a code or standard. Usually, the AHJ is the building and/or fire official of the city, county, or state in which the job site is located. In certain cases, such as health care facilities, transient accommodations and day care facilities, the AHJ is the city or county building and/or fire official and the chief of the state patrol, through the director of fire protection.
<b>AHRI</b>	The Air-Conditioning, Heating, and Refrigeration Institute. It is the trade association representing manufacturers of HVACR and water heating. Website: <a href="http://www.ahrinet.org">www.ahrinet.org</a> .
<b>Air Conditioner</b>	It is a device that changes humidity levels, temperature or quality of air.
<b>Air-Cooled System</b>	It is a type of precision cooling system widely used in IT environments of all sizes. In an air-cooled system, the condensing coil is exposed directly to the outside

<b>TERMS</b>	<b>DEFINITIONS</b>
	atmosphere. All other refrigerant cycle components are contained within the air conditioner. This sometimes requires refrigerant lines to be run long distances to the building's roof or external perimeter
<b>Airflow Volume</b>	It is measured in cubic feet per minute (cfm). It is the amount of air circulated in a space.
<b>Air Handler</b>	It is the indoor part of the air conditioning system including the circulating fan and evaporator (summer) / condenser (winter) coil.
<b>Ambient Temperature</b>	It is the average temperature of the medium, usually air, surrounding the object under consideration
<b>Ampere</b>	Ampere is a unit of measure referring to the flow of electrons within a circuit. Both voltage (Pressure) and amperage (Flow) are required or must be available to produce work (Watts). In a circuit with a fixed resistance (Ohms), the value of volts vs amps will change inversely in relation to each other
<b>ANSI</b>	American National Standards Institute
<b>ANSI/ASHRAE Standard 15</b>	Safety Code for Mechanical Refrigeration
<b>ANSI/ASHRAE Standard 34</b>	Designation and Safety Classifications of Refrigerants
<b>ANSI/IIAR 2-2008a</b>	American National Standard for Equipment, Design & Installation of Ammonia Mechanical Refrigerating Systems
<b>ANSI/IIAR 3-2005</b>	Ammonia Refrigeration Valves
<b>ANSI/ISA – S5-1984</b>	Instrumentation Symbols and Identification

<b>TERMS</b>	<b>DEFINITIONS</b>
<b>ANSI/NFPA 70</b>	National Electric Code
<b>AO</b>	OSHA’s Area Office
<b>API</b>	American Petroleum Institute
<b>Apparent Thermal Conductivity</b>	It is the thermal conductivity assigned to a material that exhibits thermal transmission by several modes of heat transfer, resulting in property variation with specimen thickness or surface emittance
<b>Apparent Thermal Resistivity (R-value)</b>	It is the thermal resistivity assigned to a material that exhibits thermal transmission by several modes of heat transfer, resulting in property variation with specimen thickness or surface emittance
<b>Application Temperature Limits</b>	It is the minimum and maximum temperatures between which it is usually safe to service finishes, adhesives, and sealants without endangering the integrity of the material
<b>ARM</b>	IIAR’s Ammonia Refrigeration Management Program was developed to assist smaller facilities under 10, 000 lbs. of Ammonia
<b>ARTG</b>	IIAR’s Ammonia Refrigeration Training Guideline
<b>ASHRAE</b>	American Society of Heating, Refrigerating, and Air-Conditioning Engineers. It is a global society advancing human well-being through sustainable technology for the built environment. The society and its members focus on building systems, energy efficiency, indoor air quality, refrigeration and sustainability within the industry. Website: <a href="http://www.ashrae.org">www.ashrae.org</a>

TERMS	DEFINITIONS
<b>ASHRAE 52.1</b>	It is a document describing the evaluation and performance of air filters used in data centers and equipment rooms
<b>ASHRAE TC9.9</b>	Technical Committee for Facility and Equipment Thermal Guidelines for Data Center and other Data Processing Environments. This is a consortium of IT users and manufacturers creating common guidelines for the standardization, layout, testing and reporting of IT rooms and data centers.
<b>ASME</b>	American Society of Mechanical Engineers
<b>ASME/ANSI B31.5</b>	Refrigeration Piping and Heat Transfer Components Standards
<b>AVD</b>	OSHA Shorthand for Alleged Violation Description
<b>Bands</b>	It is the strapping used to fasten insulation and/or jacketing in place
<b>BD</b>	Piping Identification for Booster Discharge Line
<b>BHP</b>	Brake Horsepower
<b>Bleeder Valve</b>	A Bleeder Valve is a valve used to drain Ammonia from hoses and piping safely
<b>BLEVE</b>	Boiling Liquid Expanding Vapor Explosion
<b>BPCS</b>	Basic Process Control System
<b>BTU</b>	British Thermal Unit (It is equal to about the heat put off by 1 wooden kitchen match). It is a measurement of the amount of heat required to raise or lower the temperature of one pound of water 1°F
<b>BTU/h</b>	British Thermal Units per hour

TERMS	DEFINITIONS
<b>Burner</b>	It is a device that facilitates the combustion of air and gas.
<b>Burner Orifice</b>	It is the opening in the burner through which the gas or fuel passes prior to combustion
<b>CA</b>	Compliance Audit
<b>CAA</b>	Clean Air Act
<b>CalARP</b>	California Code of Regulation Title 19: California Accidental Release Prevention Program
<b>Capacity</b>	It is the output produced by the heating or cooling unit. It is measured in BTU/hr
<b>CARO</b>	RETA Certification: Certified Assistant Refrigeration Operator
<b>CAS Registry Number</b>	A unique number consisting of up to nine digits assigned to a chemical
<b>CBI</b>	EPA Shorthand for Confidential Business Information
<b>CC</b>	Capacity Control
<b>CCF</b>	Common Cause Failure
<b>CCPS</b>	Center for Chemical Process Safety
<b>CD</b>	Piping Identification for Condensate Drain Line
<b>CDX</b>	Central Data Exchange for the EPA
<b>Ceiling Mount</b>	It is a small precision air conditioner hung from, or suspended above, a ceiling. This type of air conditioner comes in many designs, but usually is connected to a heat rejection unit on an outdoor pad or rooftop via refrigerant or water lines
<b>Cellular Insulation</b>	It is the insulation composed of small, individual cells separated from each other. The cellular material may be

TERMS	DEFINITIONS
	glass such as polystyrene, polyurethane, polyisocyanurate, or elastomeric.
<b>Celsius</b>	It is a temperature scale that registers the freezing point of water as 0° and the boiling point as 100° under normal atmospheric pressure.
<b>CEPPO</b>	EPA’s Chemical Emergency Preparedness and Prevention Office
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
<b>Certification</b>	According to 29 CFR 1910, Certification is defined as a written, signed and dated statement confirming the performance of a requirement of this section. 1910.66
<b>CFATS</b>	Department of Homeland Security’s Chemical Facilities Anti-Terrorism Standards
<b>CFM</b>	Cubic Feet per Minute. It is a standard of airflow measurement
<b>CFR</b>	Code of Federal Regulation
<b>Charging a System</b>	It is a term used to describe adding a coolant, or refrigerant, to an HVAC & R system
<b>Check Valve</b>	A Check Valve is a valve that allows flow only in one direction
<b>Chemical</b>	According to 29 CFR 1910, A Chemical is defined as any element, chemical compound or mixture of elements and/or compound. 1910.1200
<b>CHEMNEP</b>	OSHA’s Chemical National Emphasis Program
<b>Chilled Water System</b>	It is a type of precision cooling system widely used in mid-sized to large IT environments. A chilled water system uses water as a cooling medium. Cold water is



TERMS	DEFINITIONS
	<p>pumped from a chiller to computer room air handlers designed to cool the space. A chilled water air conditioner can be likened to a car radiator with a fan, with hot air being cooled by being blown through a cool radiator. In a chilled water system cooling an IT facility, the chilled water may be provided as a utility in the building, or special dedicated water chillers may be installed</p>
<b>Chiller</b>	<p>It is a device used to continuously refrigerate large volumes of water. A chiller uses the refrigeration cycle to produce large volumes of chilled water (typically at 45-48°F / 7-9°C) that is distributed to Computer Room Air Handlers (CRAH) units designed to remove heat from the IT environment</p>
<b>CHSO</b>	<p>Compliance Health and Safety Officer (See also CSHO)</p>
<b>CIRO</b>	<p>RETA Certification: Certified Industrial Refrigeration Operator</p>
<b>Clean room</b>	<p>It is a room that is virtually free of dust or bacteria. It is used in laboratory work and in assembly or repair of precision equipment. Clean rooms usually use precision air conditioning</p>
<b>CMMS</b>	<p>Computerized Maintenance Management Systems</p>
<b>CO</b>	<p>Carbon Monoxide</p>
<b>CO<sub>2</sub></b>	<p>Carbon Dioxide</p>
<b>Coating</b>	<p>It is a liquid or semi-liquid that dries or cures to form a protective finish, suitable for application to thermal insulation or other surfaces in a dry thickness of 20 mils or fewer per coat</p>

TERMS	DEFINITIONS
<b>Coil</b>	The coil, or evaporator coil, is connected to the airflow outlet of the furnace. Conditioned refrigerant is circulated through the coil to cool the structure in the summer and heat in the winter. As warm indoor air passes through the indoor or evaporator coil, temperature and humidity are removed creating cooler indoor air. Installing a correctly sized and rated evaporator coil is essential for getting the highest performance and comfort from your central air conditioning or heat pump system.
<b>Comfort Air Conditioning</b>	Common air conditioning systems designed for the comfort of people. When compared to computer room air conditioning systems, comfort systems typically remove an unacceptable amount of moisture from the space and generally do not have the capability to maintain the temperature and humidity parameters specified for IT rooms and data centers.
<b>Competent</b>	According to 29 CFR 1910, Competent is defined as possessing the skills, knowledge, experience, and judgement to perform assigned tasks or activities satisfactorily as determined by the employer. 1910.120
<b>Compressor</b>	A Compressor is a unit used for compressing vapor to higher pressures. It is the heart or “pump” within an air conditioning, refrigeration or heat pump system
<b>Condenser</b>	A condenser is a unit (usually a heat exchanger) in which heat is transferred from vapor to the outside air in order to condense ammonia into a liquid.

TERMS	DEFINITIONS
<b>Condensate</b>	As warm air is pulled or pushed across the cool evaporator coil the coil perspires, creating liquid, or condensate which is mechanically drained away from the equipment.
<b>Condenser Coil</b>	Generally, it is the outdoor coil It removes heat from the refrigerant in the summer months, allowing the refrigerant to be converted from vapor to liquid and complete the refrigeration process.
<b>Condenser fan</b>	It is a fan that accelerates the movement of air over the condenser coil, facilitating the removal of heat from the refrigerant.
<b>Conductance, Thermal (C-value)</b>	It is the time rate of steady-state heat flow through a unit of a material or construction induced by a unit temperature difference between the body surfaces
<b>Conduction</b>	It is a mode of heat transfer in which heat energy is transferred within an object itself or between objects in contact. When a cold spoon is left in a pot of boiling water, the spoon eventually becomes hot. This is an example of conduction. Conduction is one of the three forms of heat transfer, which also include Convection and Radiation
<b>Conductivity, Thermal (K-value)</b>	It is the measure of heat that passes through a unit area of a homogenous substance, through a unit thickness, in a unit of time, for each unit temperature difference. The lower the K-value, the higher the insulating value
<b>Convection</b>	It is a mode of heat transfer in which heat energy is transferred from an object to moving fluid such as air,

TERMS	DEFINITIONS
	water, or refrigerant. The heat sink of a computer processor is an example of heat transfer by convection
<b>Cooling Tower</b>	It is a heat rejection method that transfers heat energy from a data center or IT room to the outside atmosphere via the evaporation of water. In a cooling tower, water is sprayed onto a high surface-area packing material as large volumes of air are drawn across through the structure. The net effect of this process is that a small portion of the water circulated through the cooling tower evaporates into the outside atmosphere. The remaining water (now cooler) is collected at the bottom of the cooling tower
<b>C<sub>p</sub></b>	Specific Heat at Constant Pressure. Its English unit is BTU/lb.-°F
<b>C<sub>v</sub></b>	Specific Heat at Constant Volume. Its English unit is BTU/lb.-°F
<b>CPL 02-00-148</b>	OSHA’s Field Operations Manual
<b>CPL 02-02-07 Appendix A</b>	OSHA’s discussion on the difference between “incidental release and emergency response”
<b>CPL 03-00-014</b>	OSHA’s New CHEMNEP Nationwide
<b>CPL 2-2.45A</b>	OSHA’s instruction of auditing PSM programs “PQV”. It began on September 13 <sup>th</sup> , 1994.
<b>CPR</b>	Vessel identifier for Controlled Pressure Receiver
<b>CQ</b>	Shorthand for Contractor’s Qualifications
<b>CR</b>	Compression Ratio
<b>CRAC</b>	Computer Room Air Conditioning Unit. It is a device usually installed in the data center that uses a self-

TERMS	DEFINITIONS
	<p>contained refrigeration cycle to remove heat from the room and send it away from the data center through a kind of cooling medium via piping. It must be used with a heat rejection system which then transfers the heat from the data center into the environment. The heat rejection system typically takes one of the following forms: condensing unit, fluid cooler, or cooling tower to discharge heat to the outdoor atmosphere</p>
<b>CRAH</b>	<p>Computer Room air Handling Unit. It is a device usually installed in the data center or IT room that uses circulating chilled water to remove heat. It must be used in conjunction with a chiller</p>
<b>CSA</b>	<p>Canada Standards Association</p>
<b>CSAT</b>	<p>Department of Homeland Security’s Chemical Security Assessment Tool</p>
<b>CSB</b>	<p>United States Chemical Safety Board</p>
<b>CSHO</b>	<p>Compliance Safety and Health Officer (See also CHSO)</p>
<b>CSC</b>	<p>Car Sealed Closed. A valve sealed in the closed position</p>
<b>CSO</b>	<p>Car Sealed Open. A valve sealed in the open position</p>
<b>CVI</b>	<p>Department of Homeland Security’s “Chemical-terrorism Vulnerability Information”</p>
<b>Damper</b>	<p>A Damper is a valve for controlling airflow. It is found at the junction point of ductwork; movable plate opens and closes to control airflow. It can be manually or automatically controlled to regulate airflow to desired system zones</p>
<b>DC</b>	<p>Piping Identification for Defrost Condensate Line</p>

TERMS	DEFINITIONS
<b>DC</b>	It is a type of electrical current that only flows in one direction.
<b>Degree-Day</b>	It is evaluated by subtracting the average outdoor temperature for an area from 65°F. This measurement is used to estimate the amount of heating or cooling a home or building will need.
<b>Dehumidifier</b>	It is a device that removes humidity, or moisture, from the air
<b>Demonstration</b>	According to 29 CFR 1910, Demonstration is defined as the showing by actual use of equipment or procedure. 1910.120
<b>DEP</b>	Directorate of Enforcement Programs or Department of Environmental Protection
<b>Design Condition</b>	It consists of the desired properties for an environment expressed in dry bulb temperature, wet bulb temperature and relative humidity. Cooling equipment manufacturers normally published performance data of air conditioning systems at several design conditions
<b>Dew Point</b>	It is the temperature at which water vapor begins to condense. On a hot summer day, a cold soda can is below the dew point which causes condensation on the surface of the can.
<b>DHS</b>	US Department of Homeland Security
<b>Diffuser</b>	It is a grille over an air supply duct with vanes that distribute the discharging air in a specific pattern or direction
<b>DOE</b>	Department of Energy. Website: <a href="http://www.energy.gov">www.energy.gov</a>
<b>DOT</b>	US Department of Transportation

TERMS	DEFINITIONS
<b>Downflow Furnace</b>	It is a furnace with an intake on the top and an air discharge at the bottom
<b>DQC</b>	Document Quality Control
<b>Drain Pan</b>	It is also referred to as a condensate pan. As vapor condenses, the drain pan collects the condensate and channels it to the drain line
<b>Dry Bulb Temperature</b>	It is the temperature measured without considering the humidity.
<b>Ductwork</b>	Ductwork consists of round or rectangular pipes or controlled paths acting as a conduit for return, mixed, makeup, supply or exhaust air. Supply air is downstream of high pressure side of fan while the Return air is upstream of low pressure inlet of fan
<b>DX</b>	Direct Expansion Evaporator. It is a general term applied to air conditioning systems that have a self-contained refrigeration system and are air, glycol or water-cooled.
<b>EAP</b>	Emergency Action Plan 29 CFR 1910.38
<b>EAS</b>	Employee Alarm System
<b>Economizer</b>	The term is used to describe a mechanism that removes flash gas from the evaporator
<b>Education</b>	According to 29 CFR 1910, Education is defined as the process of imparting knowledge or skill through systematic instruction. It does not require formal classroom instruction. 1910.155
<b>EE</b>	OSHA shorthand for Employee (It is common in citations)

TERMS	DEFINITIONS
<b>EER</b>	Energy Efficiency Ratio. It is the ratio of the output cooling energy (in BTU) to input electrical energy at a given operating point.
<b>EHHC</b>	Extremely Highly Hazardous Chemical
<b>Energy Star®</b>	ENERGY STAR is a U.S. Environmental Protection Agency (EPA) voluntary program that helps businesses and individuals save money and protect our climate through superior energy efficiency. Website: <a href="http://www.energystar.gov">www.energystar.gov</a>
<b>Enthalpy</b>	It is the total quantity of energy used to heat or cool a substance between two temperatures including the energy used to change the state of the substance if applicable. For example, if we heat a sample of water at normal atmospheric pressure from 33°F to 275°F (1°C to 135°C), the enthalpy is the sum of the sensible heat energy added (from 33°F / 1°C to 212°F / 100°C and from 212°F / 100°C to 275°F / 135°C) and the latent heat energy added (state change from liquid to vapor at 212°F / 100°C)
<b>EOP</b>	Emergency Operational Procedure
<b>EP</b>	Employee Participation
<b>EPA</b>	Environmental Protection Agency. It is an agency of the U.S. federal government which was created for the purpose of protecting human health and the environment by writing and enforcing regulations based on laws passed by Congress. Website: <a href="http://www.epa.gov">www.epa.gov</a>
<b>EPCRA</b>	Emergency Planning and Community Right-to-Know Act
<b>EQ</b>	Piping Identification for Equalizer Line



<b>TERMS</b>	<b>DEFINITIONS</b>
<b>ER</b>	Emergency Response, also OSHA shorthand for Employer (It is common in citations)
<b>ES</b>	Piping Identification for Economizer Suction Line
<b>ESP</b>	Emergency Shutdown Procedure
<b>Evaporator</b>	An Evaporator is a unit designed to vaporize liquid refrigerant, thus cooling the air by absorbing heat
<b>Evaporator coil</b>	It is also known as an indoor coil. It is a device designed to absorb heat in the air in order to change the liquid refrigerant that flows through it into a vapor initiating the cooling process.
<b>EX</b>	Exhaust Air
<b>Expansion Valve</b>	It is a valve that meters the levels of refrigerant through a temperature or pressure control
<b>F-Rating</b>	It is a rating usually expressed in hours, indicating a specific length of time that a fire-resistive barrier can withstand fire before being consumed or permitting the passage of flame through an opening in the assembly, as determined by ASTM E 814 (UL 1479)
<b>Facing</b>	It is a thin covering adhered to the surface of insulation prior to field installation
<b>Fahrenheit Scale</b>	It is a scale for temperature with its units in “°F”. On a Fahrenheit thermometer, under standard atmospheric pressure, boiling point of NH <sub>3</sub> is -28°F while the freezing point is -107.9°F. Whereas, that of water is 212°F and 32°F respectively.
<b>Fan</b>	It is a device consisting of motor and a blower wheel that creates airflow.

TERMS	DEFINITIONS
<b>FAR</b>	Fatal Accident Rate
<b>Fibrous Insulation</b>	It is the insulation composed of small-diameter fibers that finely divide the air space. Fibers used are silica, rock wool, slag wool, or alumina silica
<b>Film (Wet)</b>	It is the applied layer of mastic or coating before curing or drying
<b>Filter</b>	A central heating and cooling system may use multiple filters. The air filter is integral to the system intake ducting, prevents contaminants from entering the equipment and must be maintained or replaced at regular intervals. There is also a filter in the refrigeration system, also referred to as a drier, which acts like a strainer to remove dirt and undesired particles from the system.
<b>Finish</b>	It is the texture of a metal surface. Finishes include jackets, mastics, or strong films used for aesthetics or to protect insulation from 1 or more of the following: weather, mechanical and/or personnel abuse
<b>Flash</b>	It is a term used to describe the change in state of refrigerant from a liquid to a vapor inside the expansion valve and evaporator coil of a room air conditioning unit
<b>Flow Regulator</b>	A Flow Regulator is a controlling device which regulates the flow of liquid in a pipe
<b>Fluid Regulating Valve</b>	It is a device, often controlled by an electric motor, to regulate the flow of water or glycol through the coil and/or heat exchanger in a computer room air conditioner or air hand
<b>FMEA</b>	Failure Mode Effects Analysis

TERMS	DEFINITIONS
<b>Flue</b>	It is a vent that removes the byproducts of combustion from furnace
<b>FOM</b>	OSHA's Field Operations Manual
<b>FR</b>	Piping Identification for Flooded Return Line
<b>Freon</b>	It is a generic term applied to several types of refrigerants commonly found in an air conditioning system
<b>FS</b>	Piping Identification for Flooded Supply Line
<b>Fully Ducted Distribution</b>	It is an air distribution or return methodology in which air is directly ducted into or out of the loads
<b>Furnace</b>	It is a device that facilitates the combustion of fuel and air to create heat and then circulates it through the home by means of a fan. It is the major gas fired component for heating a home.
<b>Fuse</b>	It is a delicate metal strip connecting two parts of an electrical circuit. This strip works as a safety, or circuit protector, and breaks, or melts, in the event of excess electrical charge, breaking the electrical circuit.
<b>GAMA</b>	Gas Appliance Manufacturers Association
<b>Gauge</b>	It is a device used to measure pressures below atmospheric pressure
<b>Gauge Manifold</b>	It is a device constructed to hold compound and high pressure gauges containing hand valves to control flow
<b>GCAP</b>	Garden City Ammonia Program
<b>Granular Insulation</b>	It is the insulation composed of small nodules that contain voids or hollow spaces. The materials may be calcium silicate, diatomaceous earth, expanded

TERMS	DEFINITIONS
	vermiculite, perlite, cellulose, or microporous insulations.
<b>Hands-on-Training</b>	According to 29 CFR 1910, Hands-on-Training is defined as the training in simulated work environment that permits each student to have experience performing tasks, making decisions, or using equipment appropriate to the job assignment for which the training is being conducted. 1910.120
<b>HAZCOM</b>	Hazard Communication 29 CFR 1910.1200
<b>HazOp</b>	Hazard and Operability Study
<b>HAZWOPER</b>	Hazardous Waste Operations and Emergency Response 29 CFR 1910.120
<b>Head Pressure</b>	It is the pressure which exists in the condensing side of a refrigerating system
<b>Head Pressure Control</b>	It is the pressure operated control which opens electrical circuit if high side pressure becomes excessive
<b>Head, Static</b>	It is the pressure of fluid expressed in terms of height of column of the fluid, such as water or mercury
<b>Head, Velocity</b>	In flowing fluid, height of fluid is equivalent to its velocity pressure.
<b>Heat Exchanger</b>	It is a device for the transfer of heat energy from the source to the conveying medium.
<b>Heat Gain</b>	It is the amount of heat added or created in a designated area
<b>Heating Coil</b>	It is a coil that acts as a heat source for a heating system
<b>Heat Loss</b>	It is the amount of heat subtracted or lost from a designated area

TERMS	DEFINITIONS
<b>Heat Pump</b>	It is a device used for either the heating or cooling of a space by transferring heat between two reservoirs
<b>Heat Transfer</b>	It is the flow of heat from one area to another by conduction, convection, and/or radiation. Heat flows naturally from a warmer to a cooler material or space.
<b>HEV</b>	Hand Expansion Valve (also referred to as HXV)
<b>HG</b>	Piping Identification for Hot Gas Line
<b>HGD</b>	Piping Identification for Hot Gas Defrost Line (also referred to as Hot Gas Discharge)
<b>HHC</b>	Highly Hazardous Chemical
<b>Housekeeping</b>	According to 29 CFR 1910, Housekeeping is defined as the process of keeping the storage areas free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control will be exercised when necessary. 1910.176
<b>HPL</b>	Piping Identification for High Pressure Liquid Line
<b>HPR</b>	High Pressure Receiver
<b>HSD</b>	Piping Identification for High Stage Discharge Line
<b>HSPF</b>	Heating Seasonal Performance Factor. It is a term specifically used to define the measurement of efficiency of residential heat pump system
<b>HSS</b>	Piping Identification for High Stage Suction Line
<b>HTHM</b>	High Toxic Hazardous Material
<b>HTL</b>	Piping Identification for High Temperature Liquid Line
<b>HTRL</b>	Piping Identification for High Temperature Recirculated Suction Line
<b>HTS</b>	Piping Identification for High Temperature Suction Line

TERMS	DEFINITIONS
<b>HV</b>	Hand Shutoff Valve or Hand Valve
<b>HVAC</b>	Heating, Ventilation and Air Conditioning. Sometimes an “R” is shown at the end to represent Refrigeration.
<b>Humidifier</b>	It is a device that adds humidity, or moisture, to the air
<b>Humidistat</b>	It is a device that measures humidity and turns the humidifier on and off
<b>Humidity</b>	It is the dampness in the air caused by water vapor
<b>HWP</b>	Hot Work Permit
<b>HXV</b>	Hand Expansion Valve (also referred to as HEV)
<b>IAR</b>	Industrial Ammonia Refrigeration Operators National Standard
<b>IARW</b>	International Association of Refrigerated Warehouses
<b>IDLH</b>	Immediately Dangerous to Life and Health. It was set forth by OSHA at 300 ppm for Ammonia
<b>IEBC</b>	International Existing Building Code
<b>IECC</b>	International Energy Conservation Code
<b>IEEE</b>	Institute for Electrical and Electronic Engineers
<b>IFC</b>	International Fire Code
<b>IFGC</b>	International Fuel Gas Code
<b>Ignition</b>	It is the process of increasing the temperature of a substance to the point of causing a combustive reaction.
<b>IHI</b>	Individual Hazard Index
<b>II</b>	Incident Investigation
<b>IIAR</b>	International Institute for Ammonia Refrigeration
<b>IIAR Bulletin 107</b>	Suggested Safety and Operating Procedures when making Ammonia Refrigeration Tie-ins
<b>IIAR Bulletin 108</b>	Water Contamination in Ammonia Refrigeration Systems

TERMS	DEFINITIONS
<b>IIAR Bulletin 109</b>	IIAR Minimum Safety Criteria for Ammonia Refrigeration Systems
<b>IIAR Bulletin 110</b>	IIAR Guidelines for: Startup, Inspection, and Maintenance of Ammonia Mechanical and Refrigeration Systems
<b>IIAR Bulletin 111</b>	Guidelines for: Ammonia Machinery Room Ventilation
<b>IIAR Bulletin 112</b>	Ammonia Machinery Room Design
<b>IIAR Bulletin 114</b>	Guidelines for: Identification of Ammonia Refrigeration Piping and System Components
<b>IIAR Bulletin 116</b>	Guidelines for: Avoiding Component Failure in Industrial Refrigeration Systems Caused by Abnormal Pressure or Shock
<b>IIR</b>	International Institute of Refrigeration
<b>IMC</b>	International Mechanical Code
<b>Induction Motor</b>	It is an AC motor which operates on the principle of rotating magnetic field. Rotor has no electrical connection but receives electrical energy by transformer action from field windings.
<b>Interconnection Agreement</b>	It is a connection or link between power systems that enables them to draw on each other's reserve capacity in time of need.
<b>Intercooler</b>	An Intercooler is the immediate vessel between the high stage and low stage in a multistage system
<b>IOMs</b>	Installation, Operation, and Maintenance Manuals
<b>ISA</b>	Instrument Society of America
<b>ISO</b>	International Standards Organization

TERMS	DEFINITIONS
<b>ISO 14000</b>	Standards published by the International Organization for Standardization for establishing environmental management systems
<b>ISO 9000</b>	Standards published by the International Organization for Standardization for quality management systems
<b>ISP</b>	Initial Startup Procedure
<b>ITMP</b>	Inspection, Testing and Maintenance Procedures
<b>Jacket</b>	It is a protective covering installed over thermal insulation
<b>Junction Box</b>	A Junction box consists of a group of electrical terminals housed in protective box or container
<b>Kaizen</b>	It refers to a quality system using lessons learned-continuous improvement.
<b>kW</b>	Kilowatt. It is equal to 1000 watts
<b>L</b>	Likelihood Column of a What If/Checklist of a PHA
<b>L/T</b>	Lockout/Tagout (sometimes represented as LO/TO)
<b>L2F</b>	Letter to File
<b>L3RMP</b>	EPA's Level 3 Risk Management Plan Checklist Audit
<b>Lagging- Insulation</b>	It is a block material for insulating tanks or boilers, pipe, ducts, vessels or other mechanical equipment usually curved or tapered. It can be made from any of several insulation materials. Lagging insulation is usually applied in the form of cut, pieced together, or mitered parts
<b>Lagging- Jacketing</b>	It is the jacketing installed over insulation
<b>Latent Heat</b>	It is the energy released or absorbed, by a body or a thermodynamic system, during a constant-temperature process that creates a change of state. An example is the



<b>TERMS</b>	<b>DEFINITIONS</b>
	latent heat of vaporization which creates a phase transition from liquid to a vapor at a specified temperature and pressure
<b>Leak Detector</b>	It is a device, or an instrument used to detect leaks
<b>LEL</b>	Lower Explosive Limit: For Ammonia 15% or 150,000 ppm
<b>LEPC</b>	Local Emergency Planning Commission
<b>Lessons Learned</b>	Applying knowledge gained from past incidents in current practices
<b>LFL</b>	Lower Flammability Limit: For Ammonia 15% or 150,000 ppm
<b>LIC</b>	Piping Identification for Liquid Injection Cooling Line
<b>Locally Ducted Distribution</b>	It is an air distribution or return methodology in which air is provided or returned via ducts which have vents located near the loads
<b>LOPA</b>	Layer of Protection Analysis
<b>LO/TO</b>	Lockout/Tagout (sometimes represented as L/T)
<b>LPR</b>	Low Pressure Receiver
<b>Lps</b>	Liters per second. It is used to measure the flow of air through a delivery system or space. It is the metric equivalent of CFM
<b>LSD</b>	Piping Identification for Low Stage Discharge Line
<b>LSS</b>	Piping Identification for Low Stage Suction Line
<b>LT</b>	Piping Identification for Liquid Transfer Line
<b>LTL</b>	Piping Identification for Low Temperature Liquid Line
<b>LTRL</b>	Piping Identification for Low Temperature Recirculated Liquid Line

TERMS	DEFINITIONS
<b>LTRS</b>	Piping Identification for Low Temperature Recirculated Suction Line
<b>LTS</b>	Piping Identification for Low Temperature Suction Line
<b>Machine Room</b>	A Machine room is a room or space designed to safely house compressors and pressure vessels
<b>Make-Up Air</b>	It is the outside air introduced into the IT room or data center. Make-up air is mandated by building codes primarily to ensure the space is fit for human occupancy
<b>Manufacturer Approved System</b>	If replacing a condensing unit, furnace or air handler, the system must be manufacturer approved and Air Conditioning, Heating and Refrigeration Institute (AHRI) matched. <i><b>NOTE:</b> Installation of unmatched systems is strongly discouraged.</i>
<b>Mastic</b>	It is a protective coating applied by spray or trowel to weatherproof or otherwise prevent deterioration of the insulation to which it is applied
<b>MAWP</b>	Maximum Allowable Working Pressure
<b>MDMT</b>	Material Design Minimum Temperature
<b>Mean Temperature</b>	It is the sum of the cold surface temperature and the hot surface temperature, divided by 2. Mean temperatures are used to calculate thermal conductivities.
<b>Media</b>	It is the fine material of a filter that traps dirt, dust, mildew or bacteria
<b>MI</b>	Mechanical Integrity
<b>Microprocessor Controller</b>	It is a computer logic-based system found in precision cooling systems that monitors, controls and reports data

TERMS	DEFINITIONS
	on temperature, humidity, component performance, maintenance requirements and component failure
<b>MII</b>	Maximum Intended Inventory
<b>MOC</b>	Management of Change
<b>Moisture Barrier</b>	It is a polymeric film or coating applied to the inner surface of metal jacketing for the primary purpose of reducing electrolytic, pitting, or crevice corrosion of the jacketing. They are not water vapor barriers or water vapor retarders
<b>Moisture Retarder</b>	It is a layer of plastic film or other material applied to the inner side of metal jacketing to inhibit jacket corrosion by interfering with the formation of a galvanic cell between the dissimilar metals of the pipe and jacket or preventing crevice corrosion. It is not an insulation system water vapor retarder and does not perform the same function
<b>MRTL</b>	Piping Identification for Medium Temperature Recirculated Liquid Line
<b>MRTS</b>	Piping Identification for Medium Temperature Recirculated Suction Line
<b>MSDS</b>	Material Safety Data Sheet
<b>MTL</b>	Piping Identification for Medium Temperature Liquid Line
<b>MTS</b>	Piping Identification for Medium Temperature Suction Line
<b>N.C or NC</b>	Normally Closed
<b>N.O or NO</b>	Normally Open

TERMS	DEFINITIONS
<b>NAICS</b>	North American Industrial Classification System
<b>NATE</b>	North American Technician Excellence. It is the nation's largest non-profit certification organization for heating, ventilation, air conditioning and refrigeration technician. NATE is the only technician certification organization governed, owned, operated, developed and supported by the HVACR industry. Website: <a href="http://www.natex.org">www.natex.org</a>
<b>NBIC</b>	National Board Inspection Code
<b>NDT</b>	Non-Destructive Testing, usually of material thickness
<b>NEC</b>	National Energy Council/ National Electric Code
<b>NEMA</b>	National Electrical Manufacturing Association
<b>NEP</b>	National Emphasis Program Audit, usually a Chemical NEP for our industry
<b>NFPA</b>	National Fire Protection Association
<b>NFPA 471</b>	Recommended Practice for Responding to Hazardous Material Incidents
<b>NFPA 472</b>	Standard for Professional Competence of Responders to Hazardous Material Incidents
<b>NH<sub>3</sub></b>	Chemical symbol for Ammonia, one Nitrogen and three Hydrogen atoms
<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>NO</b>	OSHA's National Office
<b>NOP</b>	Normal Operational Procedure
<b>NRC</b>	National Report Center
<b>NSP</b>	Normal Shutdown Procedure
<b>OC</b>	Piping Identification for Oil Charge Line
<b>OCWR</b>	Piping Identification for Oil Cooling Water Return Line

TERMS	DEFINITIONS
<b>OCWS</b>	Piping Identification for Oil Cooling Water Supply Line
<b>OD</b>	Piping Identification for Oil Drain Line
<b>ODS</b>	Ozone Depleting Substance
<b>OP</b>	Operating Procedures
<b>Operator</b>	An Operator is an individual responsible for monitoring, controlling, and performing tasks as necessary to accomplish the productive activities of a system. The term is often used in a generic sense to include people who perform all kinds of tasks (e.g., reading, calibration, maintenance).
<b>Orifice</b>	An opening or hole
<b>OSHA</b>	Occupational Safety and Health Administration
<b>P&amp;IDs</b>	Piping and Instrumentation Diagrams
<b>Package Unit</b>	It is a heating and cooling system contained in one outdoor or indoor unit.
<b>Particulates</b>	It is made up of the fine liquid or solid particles contained in combustion gases. The quantity and size of particulates emitted by cars, power and industrial plants, wood stoves, etc. are regulated by the U.S. EPA
<b>PD</b>	Pressure Difference
<b>PEL</b>	Permissible Exposure Limit set forth by OSHA at 50 ppm for Ammonia
<b>PFD</b>	Process Flow Diagram (or less likely- Probability of Failure on Demand)
<b>PFFM</b>	Process Flow Failure Mode
<b>PHA</b>	Process Hazard Analysis
<b>PID</b>	Proportional Integral and Derivative

TERMS	DEFINITIONS
<b>PLC</b>	Programmable Logic Controller System
<b>Plenum</b>	It is a pressurized space containing a gas (typically air) at positive pressure (pressure higher than surroundings). One function of the plenum is to manage and equalize pressure for more even distribution
<b>Plenum Rating</b>	It is a special characteristic of electrical and communication wiring that is used in spaces used to transport conditioned supply or return air. Plenum rated cables have lower flammability and heat release characteristics than standard cables
<b>PM</b>	Preventive Maintenance
<b>PO</b>	Piping Identification for Pump Out Line
<b>Power Density</b>	It is the electrical power used in a space divided by the area of the space
<b>PPB</b>	Parts Per Billion
<b>PPE</b>	Personal Protective Equipment
<b>PPM</b>	Parts Per Million
<b>PQV</b>	Program Quality Verification Audit, OSHA's CPL 2-2.45a
<b>PRCS</b>	Permit Required Confined Space
<b>Pressure Vessel</b>	A Pressure Vessel is nay receptacle containing refrigerant under pressure
<b>PRG</b>	Piping Identification for Purge Line (sometimes referred to as PL)
<b>Programmable Thermostat</b>	It is a type of thermostat that allows the user to program into the devices' memory a pre-set schedule of times and temperatures enabling or disabling the HVAC equipment.

TERMS	DEFINITIONS
<b>PRV</b>	Pressure Relief Valve (sometimes referred to as PSV)
<b>PSI</b>	Process Safety Information
<b>PSI</b>	Pound per Square Inch. It is a unit of pressure resulting from the force of one pound-force applied to an area of one-square inch
<b>PSIA</b>	Pounds Per Square Inch Absolute Pressure. It is used to clarify that the pressure is relative to a vacuum rather than the ambient atmospheric pressure. Since atmospheric pressure at sea level is about 14.7 psi, this will be added to any pressure reading made in air at sea level.
<b>PSIG</b>	Pounds Per Square Inch Gauge Pressure. It indicates that the pressure is relative to atmospheric pressure
<b>PSM</b>	OSHA's Process Safety Management Program required under 1910.119
<b>PSM/RMP</b>	Process Safety Management and Risk Management Programs combined as a Unified Program
<b>PSS</b>	Process Safety System
<b>PSV</b>	Pressure Safety Valve (sometimes referred to PRV)
<b>PSSR</b>	Pre-Startup Safety Review
<b>Psychometric</b>	It is the analysis of the atmospheric conditions, particularly moisture in the air
<b>Psychometric <sup>Chart</sup></b>	It is a chart containing the properties of air and the water at different temperatures arranged in the form of a chart. It shows the quantitative interdependence between temperature and humidity. It is useful in the

TERMS	DEFINITIONS
	planning, specification and monitoring of cooling systems
<b>PVC</b>	Polyvinyl Chloride. It is a type of plastic
<b>QA</b>	Quality Assurance
<b>Qualified Person</b>	According to 29 CFR 1910, A Qualified Person is a person with specific training, knowledge, and experience in the area for which the person has the responsibility and authority to control. 1910.120
<b>R</b>	Risk Column of a What If/Checklist of a PHA
<b>R717</b>	Ammonia- a pungent, colorless gas
<b>RA</b>	OSHA's Regional Administrator
<b>Radiant Floor</b>	It is a type of radiant heating system where the building floor contains channels or tubes through which hot fluids such as air or water are circulated
<b>Radiation</b>	It is a mode of heat transfer through matter or space by means of electromagnetic waves.
<b>RAGAGEP</b>	Recognized and Generally Accepted Good Engineering Practices or Principles
<b>RC</b>	Piping Identification for Receiver Charge Line
<b>Receiver</b>	A Receiver is a vessel permanently connected to a refrigeration system of liquid Ammonia
<b>Reciprocating Compressor</b>	It is a compressor used in cooling systems to compress refrigerant by using a piston action
<b>Refrigerant</b>	It is a substance that produces a cooling (i.e., heat absorbing) effect while expanding or vaporizing
<b>Refrigerant Charge</b>	It is the amount of refrigerant in a system



TERMS	DEFINITIONS
<b>Refrigerant Destruction</b>	A recovered ODS refrigerant can be sent for destruction to a facility that can achieve the destruction efficiencies required by regulations under the Clean Air Act or the Resource Conservation and Recovery Act (RCRA)
<b>Refrigerant Hazardous Waste</b>	CFC refrigerants that will be reclaimed for further use are eligible for an exemption from federal hazardous waste regulation in 40 CFR 261.4(b)(12). CFC refrigerants that cannot be reclaimed must be evaluated to determine if they exhibit any of the characteristics of a hazardous waste (i.e., ignitability, corrosivity, reactivity, and toxicity)
<b>Refrigerant Recycling</b>	This involves recovering the refrigerants for reuse within the same system or another system operated by the same owner. Recycling may involve using EPA-approved equipment to clean refrigerants for reuse, but not to the same standards as reclamation
<b>Refrigeration</b>	It is the process of moving heat from an undesirable location to a location where it is more desirable
<b>Refrigeration Cycle</b>	It is a closed cycle of evaporation, compression and condensation that has the net effect of moving heat energy away from an environment and into another environment. Refrigerant changes its physical state from liquid to gas and back to liquid again each time it traverses the various components. As the refrigerant changes state from liquid to gas, heat energy flows into the refrigerant from area to be cooled (the IT environment for example). Conversely, as the refrigerant changes state from gas to liquid heat energy flows away

TERMS	DEFINITIONS
	from the refrigerant to a different environment (outdoors or to a water source).
<b>Resistance, Thermal (R-value)</b>	It is a measure of the ability to retard heat flow rather than the ability to transmit heat. R-value is the numerical reciprocal of “U” or “C”, thus $R = 1/U$ or $1/C$ . Thermal resistance, R-value, is used in combination with numerals to designate thermal resistance values: R-11 equals 11 resistance units. The higher the “R”, the higher the insulating value. The I-P units are $^{\circ}\text{F} - \text{ft}^2\text{-hr/Btu}$ while the SI units are $^{\circ}\text{C}\text{-m}^2/\text{W}$
<b>Resistivity, Thermal, r</b>	It is the quantity determined by the temperature difference, at steady state, between two defined parallel surfaces of a homogenous material of unit thickness, that induces a unit heat flow rate through a unit area. The Inch-Pound units are $\text{h ft F/Btu}$ or, $\text{h ft}^2\text{F/Btu in.}$ while the SI units are $\text{mK/W}$
<b>RESOP</b>	Refrigerating Equipment Standard Operating Procedure
<b>RETA</b>	Refrigerating Engineers and Technicians Association
<b>Return Air</b>	It is the air entering an air conditioning system
<b>RMP</b>	Risk Management Plan or Risk Management Program. The Plan is what is filed with the EPA, while the Program is all the things necessary to implement the Plan
<b>RMT</b>	Refrigeration Management Team
<b>RO</b>	OSHA’s Regional Office
<b>ROSOP</b>	Refrigerating Operations Standard Operating Procedure
<b>RP</b>	Respiratory Protection

TERMS	DEFINITIONS
RQ	Reportable Quantity
RR	Recirculation Ratio
RSM	Refrigeration Safety Management Program
RTK	Right to Know
RV	Piping Identification for Relief Vent Line
S	Severity Column of a What IF/Checklist of a PHA
SAF	Supply Air Fan
<b>Safety Control</b>	It is a device used to electrically shut down a refrigerating unit when unsafe pressures and/or temperature exist
<b>Safety Motor Control</b>	It is an electrical device used to open circuit if the temperature, pressure, and/or the current flow exceed safe conditions
<b>Safety Plug</b>	It is a device which releases the contents of a container above normal pressures, and before rupture pressures are reached.
SAT	Saturated Refrigerant
<b>Saturated Temperature</b>	It is the temperature at which the refrigerant exists in both liquid and vapor forms relative to its pressure
<b>SAT Charts</b>	Saturation Table or Charts
SC	Sub-Cooled Liquid Refrigerant
SCBA	Self-Contained Breathing Apparatus
SCL	Piping Identification for Sub-Cooled Liquid Line
<b>Scroll Compressor</b>	It is type of compressor used both in lower and higher efficiency air conditioners. They are popular because they feature fewer moving parts than reciprocating compressors. This translates to more efficient operation,

<b>TERMS</b>	<b>DEFINITIONS</b>
	higher tolerance to liquid refrigerant, less mechanical failure and smoother, quieter operation.
<b>Sealant</b>	In insulation, they function primarily as water and vapor seals. They may also be used as adhesives and for expansion joints for metal, masonry, cellular glass, etc. they must exhibit low shrinkage, excellent adhesion, and permanent flexibility
<b>Sealer</b>	It is a liquid coating used to prevent excessive absorption of finish coats into porous surfaces
<b>Securement</b>	It is any device, wire, strap, or adhesive used to fasten insulation into its service position and hold it there
<b>SEER</b>	Seasonal Energy Efficiency Ratio. It is defined by the Air Conditioning, Heating, and Refrigeration Institute as the cooling output during a typical cooling-season divided by the total electric energy input during the same period.
<b>Self-contained System</b>	It is a package unit
<b>Sensible Heat</b>	It is the heat added or removed that causes a change in temperature
<b>Sensor</b>	It is a device that reacts to a change in conditions
<b>SERC</b>	State Emergency Response Commission
<b>Service Temperature Limits</b>	It is the temperature to which the jacket or coating may be subjected when applied over insulation. It does not refer to the operating temperature of the equipment, vessel, or pipe
<b>Set Point</b>	It is the user-set or automatic thresholds for heating, cooling, humidification, and dehumidification usually

TERMS	DEFINITIONS
	measured in the return air stream of the computer room air conditioner or air handler.
<b>SH</b>	Superheated Refrigerant
<b>Single-Speed</b>	A single-speed motor runs at top speed until it satisfies your temperature setting and then shuts off. They are generally louder at start-up, consume more energy than alternative motor types and can cause more stress on mechanical parts
<b>Solenoid Valve</b>	A Solenoid valve is a valve actuated by magnetic action by means of an electrically energized coil
<b>SOP</b>	Standard Operating Procedure
<b>SPD</b>	Surge Protective Device. It is a device composed of at least one non-linear component and intended for limiting surge voltages on equipment by diverting or limiting surge current and it can repeat these functions as specified. SPDs were formerly referred to as Transient Voltage Surge Suppressors or secondary surge suppressors.
<b>Specific Heat</b>	It is a term used to describe the relative capabilities of refrigerants and other fluids to transport heat energy. Defined as the quantity of heat required to raise the temperature of a unit mass of a substance one degree
<b>Split System</b>	It is an outdoor unit combined with an indoor unit (as opposed to a package unit), generally providing more efficiency and configuration options
<b>SST</b>	Site-Specific Targeting Plan
<b>Standard</b>	According to 29 CFR 1910, Standard is defined as a standard which requires conditions, or the adoption or

TERMS	DEFINITIONS
	use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment
<b>STEL</b>	Short Term Exposure Limit
<b>Stop valve</b>	A Stop valve is a valve used to shut off the flow of Ammonia or any other fluid in a pipe
<b>Supply Air</b>	It is the air entering a space from an air conditioner, that is, the air leaving the air conditioning unit.
<b>TD</b>	Temperature Difference
<b>TEV</b>	Automatic Thermostatic Expansion Valve. It is a device that creates a constant evaporator temperature by the regulation of refrigerant flow through the system.
<b>Thermal Capacity</b>	It is the quantity of heat required to change the temperature of the body of 1°. For a homogenous body, it is the product of mass and specific heat. For a non-homogenous body, it is the sum of the products of mass and specific heats of the individual constituents
<b>Thermal Properties of Insulation</b>	They are usually expressed as C-value, K-value, R-value and U-value
<b>Thermostat</b>	It is a wall mounted device that monitors and controls the output of an HVAC system
<b>TML</b>	Thickness Measuring Location
<b>TON</b>	A Ton is a unit of measurement used for determining cooling capacity. One Ton is equivalent to 12,000 BTU per hour
<b>TOP</b>	Temporary Operational Procedure

TERMS	DEFINITIONS
<b>Transmittance, Thermal (U-value)</b>	It is the combined thermal value of all the materials in an insulation system, air spaces, and surface air films. The heat transmission in unit time area of a material or construction and boundary air films induced by unit temperature difference between the environments on each side. The I-P units are Btu/ (hr-ft <sup>2</sup> -°F temp difference) while the SI units are W/(m <sup>2</sup> - °C temp difference)
<b>TRI</b>	Toxic Release Inventory
<b>TSR</b>	Piping Identification for Thermosyphon Return Line
<b>TSS</b>	Piping Identification for Thermosyphon Supply Line
<b>Turning Vane</b>	It is an air management device installed in many floor stands to assist in redirecting the flow of cooling air from vertical to horizontal as it exits the computer room air conditioner or air handler
<b>TWA</b>	Time Weighted Average
<b>Two-Speed</b>	The base required for a high-efficiency air conditioner, two-speed motors cycle on in low gear and attempts to satisfy the cooling load for the home, shifting to high gear if necessary. Once it reaches the desired temperature, it cycles back down to low before shutting off. With just two speeds, it reduces start-up noise, operates with greater energy efficiency and causes less stress on mechanical parts compared to single-speed motors
<b>TXV</b>	Manual Thermostatic Expansion Valve (sometimes referred to as TEV). It is a metering valve which functions as a superheat controller.

<b>TERMS</b>	<b>DEFINITIONS</b>
<b>U1-A's</b>	Manufacturer's Data Report for Pressure Vessels – National Board
<b>UEL</b>	Upper Explosive Limit: For Ammonia 28% or 280,000 ppm
<b>UFL</b>	Upper Flammability Limit: For Ammonia 28% or 280,000 ppm
<b>UMC</b>	Uniform Mechanical Code
<b>UP</b>	Unified Program – Combining the PSM and the RMP Programs
<b>Upflow Furnace</b>	It is a furnace that pulls in air from the bottom and releases it through the top
<b>Vacuum</b>	It is a space where the pressure is significantly below that of the standards atmospheric pressure
<b>Variable Speed</b>	Ideal for high-efficiency air conditioners, a variable-speed motor functions much like a two speed, only with several speeds of operation. When compared with single- or two-speed motors, it facilitates smoother cycling and more precise performance control, as well as the most quiet operation, highest energy efficiency and least stress on mechanical parts.
<b>Vapor Barrier</b>	It consists of paints, plastic sheeting, floor or ceiling material specifically designed to minimize the migration of humidity into or out of an IT room or data center
<b>VE</b>	Volumetric Efficiency
<b>Ventilation</b>	The process of moving air (changing) into and out of an interior space either by mechanically induced (forced) means



TERMS	DEFINITIONS
<b>Volt</b>	It is the derived unit for electrical potential and electromotive force
<b>Voltage</b>	It is the force pushing electrical current along wires and cables
<b>Water Absorption</b>	It is the increase of a material expressed as a percentage of its dry weight or volume after immersion in water for a specified time
<b>Water Vapor Permeability</b>	It is the time rate of water vapor transmission through unit area of flat material of unit thickness induced by unit vapor pressure difference between 2 specific surfaces under specified temperature and humidity. Water vapor permeability is measured in the ingress protection (IP) system in perm inches
<b>Water Vapor Pressure</b>	it is the pressure of water vapor at a given temperature. It is also the component of atmospheric pressure contributed by the presence of water vapor
<b>Water Vapor Resistance</b>	It is the steady-state vapor pressure difference that induces unit time rate of vapor flow through unit area and unit thickness of a flat material (or construction that acts like homogenous body) for specific conditions of temperature and relative humidity at each surface
<b>Water Vapor Retarder (Barrier)</b>	It is a material or system that significantly impedes the transmission of water vapor under specified conditions
<b>Water Vapor Retarder (Jacket)</b>	It is any material or composite meeting the requirements of a water vapor retarder and used for the jacketing of insulation material. It may be factory furnished or field applied and may or may not be adhered to the insulation material

TERMS	DEFINITIONS
<b>Water Vapor Transmission Rate (WVTR)</b>	It is the steady-state water vapor flow in unit time through unit area of a body, normal to specific parallel surfaces, under specific conditions of temperature and humidity at each surface. The I-P units are lbs. / hr – ft <sup>2</sup> ; the SI units are g/ hr – m <sup>2</sup> .
<b>Watt</b>	It is defined as joule per second and can be used to express the rate of energy transformation with respect to time
<b>WCS</b>	Worst Case Scenario
<b>Weather/ Vapor Retarder (Barrier)</b>	It is a vapor retarder that also protects from atmospheric conditions.
<b>Wet Bulb</b>	A Wet Bulb is a device used to measure relative humidity. The evaporation of moisture reduces the temperature of wet bulb compared to dry bulb temperature in the same area
<b>Wet Bulb Thermometer</b>	It is a thermometer that measures the relative humidity in the air
<b>Working Fluid</b>	It is the gas or liquid used to transport heat. In an air conditioning system, the working fluid is the refrigerant. In the data center or IT room itself, air is the working fluid used to transport heat energy away from the IT equipment
<b>WFLO</b>	World Food Logistics Organization
<b>WO</b>	Work Orders
<b>Zoning</b>	It is a system that divides a home, office or space into different regions in order to better control the temperature and effectiveness of a heating and cooling system

