

Some Short Definition Relative to HVAC

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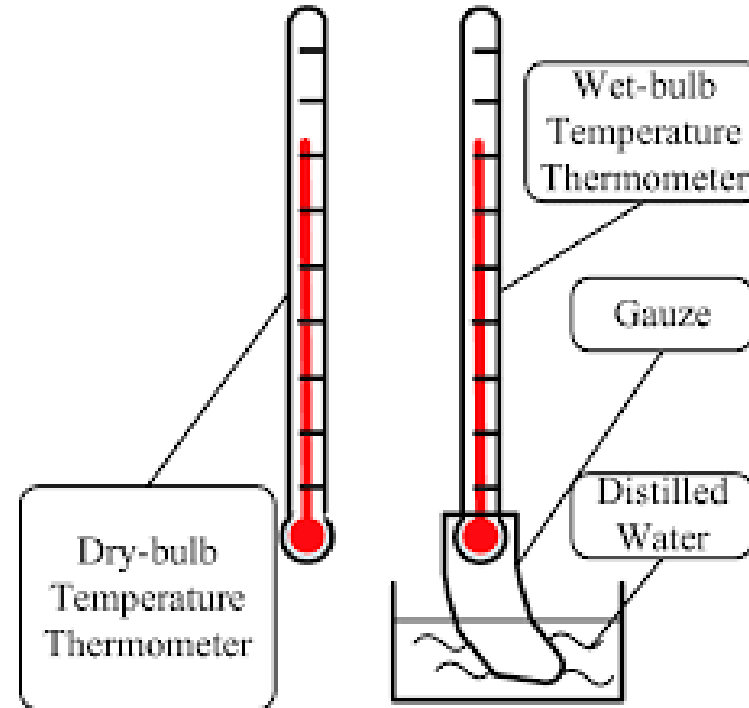
Dry-Bulb Temperature & Web-Bulb Temperature

► :- Dry-Bulb Temperature:-

The temperature of air which is measured by ordinary thermometer.

► :- Web-Bulb Temperature:-

Temperature registered by a thermometer whose bulb is covered by a wetted wick and exposed to a current of rapidly moving air.



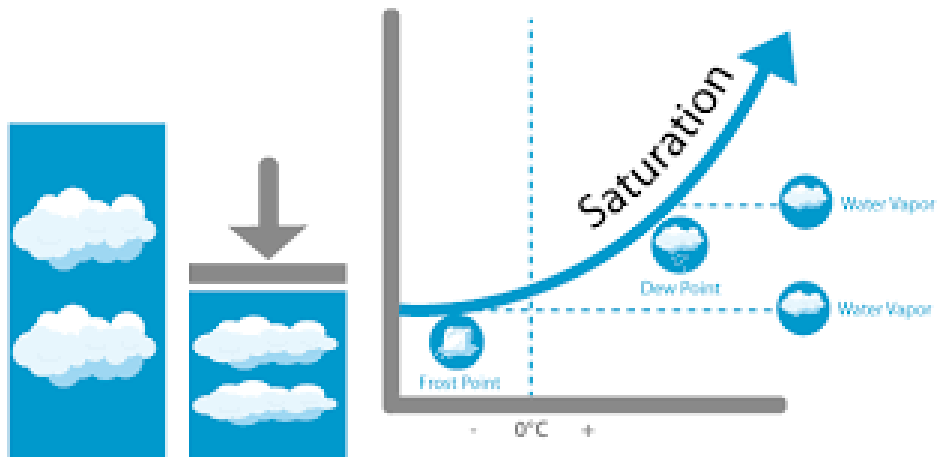
Dewpoint Temperature

:- Dewpoint Temperature:-

Temperature at which condensation of moisture begins when the air is cooled.

or

Dew point temperature is that temperature at which air is condensed into liquid.



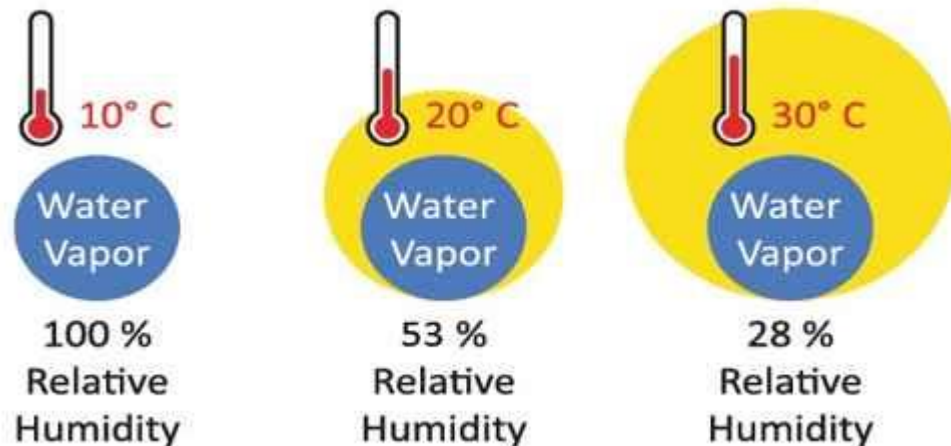
Relative Humidity

▶ Relative Humidity :-

Relative humidity is defined as the amount of water vapour present in the air to the total water vapor that air can hold.

or

Ratio of the actual water vapor pressure of the air to the saturated water vapor pressure of the air at the same.



▶ **Specific Humidity or Moisture Content :-**

Weight of water vapor in grains or pounds of moisture per pound of dry air.

▶ **:- Enthalpy:-**

A thermal property indicating the quantity of heat in the air above an arbitrary datum. In BTU per pound of dry air. The datum for dry is 0 F and for moisture content, 32 F water.

▶ **:- Enthalpy Deviation:-**

Enthalpy indicated above, for any given condition, is the enthalpy of saturation. It should be corrected by the enthalpy deviation due to the air not being in the saturated state. Enthalpy deviation in BTU per pound of dry air. Enthalpy deviation is applied where extreme accuracy is required however; on normal air conditioning estimates it is omitted.

Humidity

- **Humidity:** the amount of water in the air.
- **Absolute humidity:** the mass of water vapor in a unit volume of air.

$$AH = \frac{\text{mass of water vapor}}{\text{volume of air}}$$

Parcel Size	Mass of H ₂ O Vapor	Absolute Humidity
2 m ³	10 g	5 g/m ³
1 m ³	10 g	10 g/m ³

- **Specific humidity:** the mass of the water vapor compared to the total mass of the air parcel.

$$SH = \frac{\text{mass of water vapor}}{\text{total mass of air}}$$

Mass of Parcel	Mass of H ₂ O Vapor	Specific Humidity
1 kg	1 g	1 g/kg
1 kg	1 g	1 g/kg

- **Water (mass) mixing ratio:** The mass of water vapor compared to the mass of the rest of the air parcel.

$$MR = \frac{\text{mass of water vapor}}{\text{mass of dry air}}$$

▶ :- **Specific Volume:-**

Cubic feet of the mixture per pound of dry air.

▶ :- **Sensible Heat Factor:-**

Ratio of sensible to total heat.

▶ :- **Alignment Circle:-**

Located at 80 F db and 50% rh and used in conjunction with the sensible heat factor to plot the various air conditioning process lines.

▶ :- **Pounds of Dry Air:-**

The basis for all psychometric calculation remains constant during all psychometric processes. The dry-bulb, wet-bulb, and dew point temperatures and the relative humidity are so related that if two properties are known, all other properties shown may then be determine. When air is saturated, dry-bulb, web-bulb, and dew point temperatures are all equal.