

<b>RHVAC Formulas &amp; Conversions</b>	
1 gallon water = 8.346 lb (@68°F)	1 sq. ft. EDR = 240 Btu
$Q_s = m \times c \times \Delta t$	$Q_L = m \times hf$
1 pound = 7000 grains	1 ton refrigeration = 12,000 Btu/hr.
1 boiler HP = 33,479 Btu/hr.	1 ton refrigeration = 3.515 kW
Pressure	Electrical
1 atmosphere = 14.696 psi	1 watt = 3.412 Btu/hr
1 lb. = 27.72 in. w.c.	1 Btu/hr. = 0.2931 watt
1 oz. = 1.73 in. w.c.	1 horsepower = 2545 Btu/hr.
psia = in. Hg/2.036	1 horsepower = 746 watts
in. Hg = psia x 2.036	Voltage = Amperage x Resistance
mm Hg = psia x 51.715	Watts = (Amperage) <sup>2</sup> x Resistance
in Hg. vacuum = 29.921 - in. Hg	Watts = Voltage x Amperage
microns = 51,715 x psia	COP = EER x 0.293
1 ft (head) = 0.433 psi	EER = Output(BTU)/Input(WATTS)
Nominal Airflow	
Cooling = 400 CFM per ton	
Heating = 12 CFM per 1000 BTU input	
$CFM_{new} = CFM_{old} \times (RPM_{new}/RPM_{old})$	
$RPM = (120 \times Hz) / \text{Number of poles}$	
BTUh (sensible) = CFM x 1.08 x Temperature Rise	
BTUh (latent) = 0.68 x Q x Δg	
Water quantity (gpm) required for heating and cooling = $q/500\Delta t_{water}$	