COMMON HVAC FORMULAS

AIR SYSTEM

$Q_{Sensible} = 1.08 \times CFM \times \Delta T$

$Q_{Latent} = 4840 \times CFM \times \Delta H$

WATER SYSTEM

$Q_{Total} = 500 \times GPM \times \Delta T$

EQUIPMENT LOAD

$Q_{Total} = W \times 3.412$

$Q_{Total} = 2545 \times (HP / \text{motor eff.})$

ENERGY

1 Watt = 3.413 Btu/hr

TEMPERATURE

$F = C \times 1.8 + 32$

$F = \text{Kevin} \times 1.8 - 459.7$

CHILLER

kW/Ton = 12 / EER

kW/Ton = 12 / (COP x 3.412)

EER = 12 / (kW/Ton)

EER = COP x 3.412

COP = EER / 3.412

COP = 12 / (kW/Ton) / 3.412

MISCELLANEOUS

1 psi = 2.31 ft H20

1 HP = 0.0746 kW

1 atm = 14.7 psia

1 mile = 5280 ft

1 yard = 3 ft