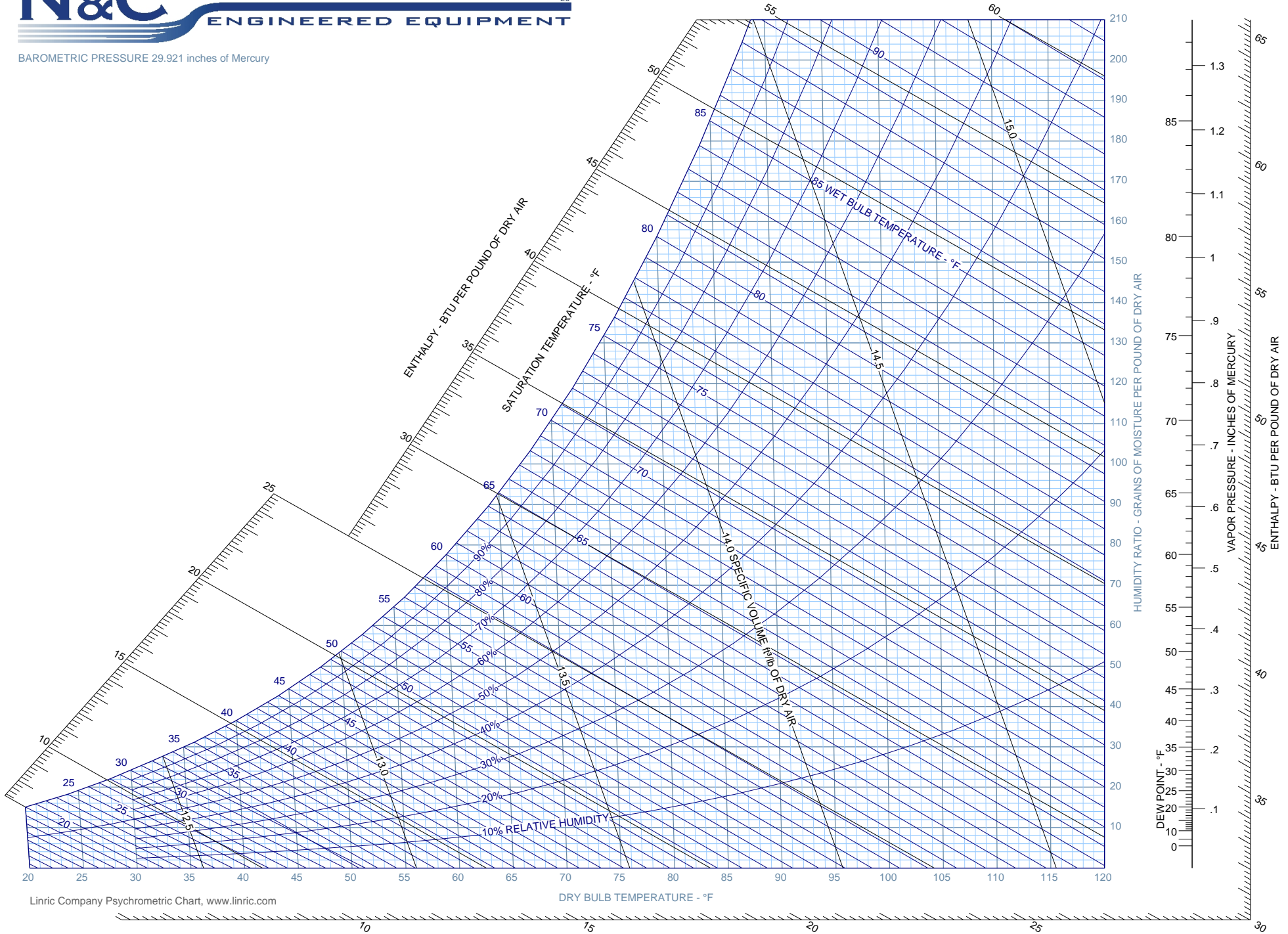


BAROMETRIC PRESSURE 29.921 inches of Mercury



COMMON EQUATIONS

AIR

Conversion Constant = 4.5

4.5 = 60 Minutes/13.25 cu ft/lb = Converts CFM to lbs/hr

Sensible Conversion = 1.085

1.085 = 4.5 x 0.241 BTU.lb/°F = Lbs/hr x Specific heat of air

Latent Conversion = 0.68

0.68 = 4.5 x 1054.3 BTU/lb / 7000 gr/lb = 4.5 combined with heat of vaporization of water @ 70 F and the grains per lb of water

Total BTUH

$$Q_{\text{total}} = \text{CFM} \times \text{DELTA H} \times 4.5$$

Sensible BTUH

$$Q_{\text{sensible}} = \text{CFM} \times \text{DELTA T} \times 1.085$$

or

$$Q_{\text{sensible}} = \text{CFM} \times \text{DELTA H}_{\text{sensible}} \times 1.085$$

Latent BTUH

$$Q_{\text{latent}} = \text{CFM} \times \text{DELTA H}_{\text{latent}} \times 4.5$$

or

$$Q_{\text{latent}} = \text{CFM} \times \text{DELTA GR} \times 0.68$$

$$\text{Moisture lb/hr} = \text{CFM} \times \text{DELTA GR} / 1555$$

Latent Heat of Vaporization

= 970 BTU/lb @ 212°F @ Sea Level

= 1054.3 BTU/lb @ 70°F @ Sea Level

Water

Conversion Constant = 500

500 = 8.33 lbs/gal x 60 minutes

$$Q_{\text{total}} = \text{USgpm} \times \text{delta T} \times 500 \text{ Btuh}$$

COMMON EQUATIONS
1 Ton = 12 MBH = 12000 Btu
7000 grains = 1.0 lb = 1 pint
Btu = Watt * 3.412
HP = kW * 1.34
KW = 0.7574 x HP / Motor Eff.
KW = (CFM x DELTA °F x 1.085) / 3413
1.0 PSI = 2.31 ft Wg
CFM = Building Volume / (Minute/Air Change)
CFM = Total BTUH / (1.085 x Temp Rise °F)
EER = BTU output / Watts input
EER = 12 / kW/ton
COP = BTU output / BTU input
COP = EER / 3.413
COP = 3.516 / (kW/ton)