HANDY FORMULAS

◊ *Total Capacity* = 4.45 x CFM x ($h_1 - h_2$) → Change in Enthalpy

◊ *Total Capacity* = 500 x GPM x ($t_1 - t_2$) → Change in Water Temperature
(Note: Number "500" above only works for fresh water.)

◊ *Sensible Capacity* = 1.08 x CFM x ($t_1 - t_2$) → Change in Dry Bulb Temperature

◊ *Calculating Mixed Air Temperature:*

○ $$\frac{(CFM_1 \times t_1) + (CFM_2 \times t_2)}{\text{Total CFM}} = t_3$$

Example: What is the resulting Db/Wb when you blend 2000 CFM at 80/67 with 1000 CFM at 95/75?

Answer: $$\frac{(2000 \times 80) + (1000 \times 95)}{3000} = 85.0° \text{ Db}$$

and $$\frac{(2000 \times 67) + (1000 \times 75)}{3000} = 69.7° \text{ Wb}$$

◊ *Face Area (sq. ft)* = $$\frac{\text{Fin Height (inches) x Fin Length (inches)}}{144}$$

◊ *Face Area (sq. ft.)* = $$\frac{\text{CFM}}{\text{Face Velocity (ft/min)}}$$

◊ *Face Velocity (ft/min)* = $$\frac{\text{CFM}}{\text{Face Area (sq. ft.)}}$$

HANDY FORMULAS (con't)

◊ *Calculating Amount of Condensate on a Cooling Coil (GPM):*

- First, you need to identify the *Latent Capacity* of your coil:

  Total Capacity – Sensible Capacity = Latent Capacity

- Next, find the *Condensate Rate* in lbs / hr:

$$\frac{\text{Latent Capacity}}{1062} = \text{Condensate Rate of } \mathbf{X} \text{ lbs / hr}$$

- Finally, convert the Condensate Rate of **X** lbs / hr to GPM (gal / min):

$$\frac{\mathbf{X} \text{ lbs}}{\text{hr}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{1 \text{ gal}}{8.34 \text{ lbs}} = \mathbf{Y} \text{ Gal / min}$$

◊ *<u>Approximate</u> Estimate of Steam Condensate Load :*

- Coil mbh x 1.05 ≈ lbs / hr of Steam Condensate