

HANDY FORMULAS

- ◇ *Total Capacity* = 4.45 x CFM x (h₁ – h₂) → Change in Enthalpy
- ◇ *Total Capacity* = 500 x GPM x (t₁ – t₂) → Change in Water Temperature
(Note: Number “500” above only works for fresh water.)
- ◇ *Sensible Capacity* = 1.08 x CFM x (t₁ – t₂) → 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?

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

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

$$\text{◇ } \text{Face Area (sq. ft.)} = \frac{\text{Fin Height (inches)} \times \text{Fin Length (inches)}}{144}$$

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

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

HANDY FORMULAS (con't)

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

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

$$\text{Total Capacity} - \text{Sensible Capacity} = \text{Latent Capacity}$$

- 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 \mathbf{X} lbs / hr to GPM (gal / min):

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

◇ Approximate Estimate of Steam Condensate Load :

- Coil mbh x 1.05 \approx lbs / hr of Steam Condensate