P.O. Box 1206 • Pryor, OK 74362 COILS DIVISION RAE CORPORATION (918) 825-7222 • Fax (800) 264-5329

<<<AIR SIDE CALCULATIONS>>>

BTUH = CFM x ΔT (°F) x 1.085 DRY AIR (HEATING OR SENSIBLE ONLY COOLING)

BTUH = CFM x Δh(BTU/LB) x 4.5 WET AIR (COOLING)
Enthalpy

$$\frac{(\text{O/A CFM} \times \text{O/A Temp}) + (\text{R/A CFM} \times \text{R/A Temp})}{\text{Total CFM (O/A + R/A)}}$$ MIXED AIR TEMPERATURE

TON AC = 12,000 BTU

<<<WATER SIDE CALCULATIONS>>>

BTUH = GPM x ΔT (°F) (WATER) x 500
ΔT (°F) = BTUH/500 x GPM

ENERGY RECOVERY LOOP – How to Determine Approx. GPM target for Coil Selection

$$\text{GPM} = \frac{\text{(Target \% Eff x BTUH)}}{\text{(450 Glycol or 500 Water x Fluid Delta T)}}$$

APPROXIMATELY 1,000 BTU = # STEAM CONDENSATE

1 PSI= 2.31' WPD

1 KW=3414 BTUH

<<<FREE DISCHARGE SYSTEM EFFECT>>>

$(OV/4005)^2$=Static Pressure x Blade Type (AFx1, BI x 1.5, FCx1.8)

<<<APPROXIMATE HUMIDIFIER LOAD CALC>>>

$$\frac{1.11 \text{ gr/cf} \times \text{CFH} \times .8}{7{,}000 \text{ gr.lb}}$$

<<<FAN MOTOR HEAT CALC>>>

$$\frac{\text{BHP} \times 2545}{1.085 \times \text{Efficiency} \times \text{CFM}}$$ OR 1/2˚ per inch of TSP (Rule of Thumb)

<<<FACE/BYPASS DAMPER SIZING CALC FOR BYPASS>>>

4005 x .8√SP = FPM

<<<COIL FPM CALC>>>

FH" x FL"/144 = Face Area in Sq/Ft
CFM/Face Area = Coil FPM