

# THE FORMULA SHEET

## FOR RESOURCE & ENERGY MANAGER'S

- EER** = Cooling Capacity (Btu/hour) / Power Input (watts)
- SEER** = Cooling Capacity (Btu/hour) / Cooling Season Energy Use (kWh)
- COP** = Heating Capacity (Btu/hour) / Power Input (watts)
- Work** = Force x Distance
- Voltage (V)** = Current (I) x Resistance (R)
- Power** = Voltage x Time
- (Apparent Power)<sup>2</sup>** = (Real Power)<sup>2</sup> + (Reactive Power)<sup>2</sup>
- kWh** = (Watts/1000) x Number of Hours
- Power Factor** = Real Power / Apparent Power
- Load Factor** = (Total kWh Consumed per Billing Period) / (Total Potential Energy Available)  
= (Total kWh Consumed per Billing Period) / (Peak Demand in kW x Billing Period x 24hrs/day)
- Fan Affinity Law:**  $(HP_2 / HP_1) = (N_2 / N_1)^3$   
 $(BHP_2 / BHP_1) = (RPM_2 / RPM_1)^3$
- Annual water catchment from roof:** Gallons = (Roof area x Average rainfall x 600) / 1000
- EUI** = Btu / SF
- ECI** = \$ / SF
- Simple Payback** = Implementation Cost / Anticipated Annual Savings