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## GLOSSARY OF TERMS

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**Amp:** The abbreviation for ampere.

**Ampere:** A unit of electrical current.

**Energy Audit:** A methodical examination and review of energy use and conservation opportunities.

**British Thermal Unit:** The quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at or near 39.2° F.

**Food Service Production Systems:**

*Conventional:* Foods are purchased in various stages of processing, and production, distribution, and service are completed on the same premises.

*Commissary:* Foods are purchased with little or no processing and are processed completely in a central facility. Prepared food generally is packaged in bulk or preplated and transported to satellite centers for service.

*Ready prepared:* Similar to the commissary system. Foods with varying degrees of processing are purchased, and the amount of production depends upon the state of the purchased food. The food items are stored either chilled or frozen and are readily available at any time for final assembly and heating for service.

*Cook-Chill and Cook-Freeze:* Variations of ready-prepared systems. In cook-chill systems most of the menu items are cooked and stored chilled for as short a time as possible. Cook-freeze menu items are cooked then frozen for as long as three months.

*Assembly/serve:* Foods are purchased and received completely processed and only the storage, assembly, heating, and service functions are performed in the food service operation.

**Horsepower (hp):** A unit of power equal in the U.S. to 746 watts.

**Kilowatt (kW):** 1,000 watts.

**Kilowatt hour (kWh):** A unit of electrical energy. A power of one kilowatt (kW) maintained for one hour produces or uses one kilowatt hour of energy.

**Life cycle cost:** The cost of equipment over its entire life, including operating and maintenance costs.



**Payback period:** The time it takes for an investment to pay for itself in cost savings.

**Phase:** Electricity is generally available in single phase power for smaller loads such as residential lights and appliances or in 3-phase for larger loads such as commercial and industrial equipment.

**Pounds per square inch (psi):** Unit of measure for gas, steam, or liquid pressure.

**Power Factor:** The percentage of total power (volts times amps) that is registered on a power (kW) meter.

**Watt:** Absolute unit of power equal to the work done at the rate of one absolute joule per second or to the rate of work represented by a current of one ampere under an electric potential of one volt and taken as the standard in the U.S. (1/746 horsepower).

**Volt:** A unit of electrical potential difference. Typical commercial and industrial voltages are 115, 208, 230, 277, and 460 volts.



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## EQUATIONS

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(Equation 1 for heating elements)

$$KW = V \times A \times \sqrt{P}$$

where: V = volts

A = Amps

P = number of phases (1 or 3)

 $\sqrt{\quad}$  = square root

kW = kilowatts

(Equation 2 for motors)

$$KW = HP \times 0.746 / \text{motor efficiency}$$

where: HP = horse power

efficiency = ratio of motor output to input power<sup>1</sup>

- or -

(Equation 3 for motors)

$$KW = V \times A \times \sqrt{P} \times PF$$

where: PF = power factor<sup>2</sup>

(Equation 4)

$$\text{Duty Cycle} = \frac{\text{Time operating}}{\text{Time On}}$$

(Equation 5)

$$kWh = kW \times \text{time} \times DC$$

where: kWh = kilowatt hours

DC = duty cycle

(Equation 6)

$$kW \times 3413 = \text{BTU/hour}$$

(Equation 7)

$$HP \times 2546 = \text{BTU/hour}$$

(Equation 8)

$$BHP \times 33,500 = \text{BTU/hour}$$

where: BHP = Boiler horsepower

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<sup>1</sup>If motor efficiency is not known, use 0.80 for small motors

<sup>2</sup>If no power factor is available, use 0.75 for small motors

