

Building Energy Efficiency Terms

- **Btu (British Thermal Unit):** It takes one Btu to raise the temperature of one pound of water by one-degree Fahrenheit at sea level.
- **Therm:** One hundred thousand (100,000) British thermal units (1 therm = 100,000 Btu).
- **Watt:** A unit of measure of electric power at a point in time, as capacity or demand.
- **kW (kilowatt):** One thousand (1,000) watts. A unit of measure of the amount of electricity needed to operate given equipment.
- **kWh (kilowatt hour):** The most commonly-used unit of measure telling the amount of electricity consumed over time.
- **Ton of Cooling:** A useful cooling effect equal to 12,000 Btu hours.

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- R-value: is the measure of resistance to heat transfer through a given area and thickness of material.

$$R = \frac{\text{ft}^2 \times \text{hr} \times \text{°F}}{\text{Btu}}$$



Higher the R-value, the better resistance to heat transfer

- U-factor: U-factor is the rate at which heat transfers through a given area of an overall construction assembly or fenestration product.

$$U = \frac{\text{Btu}}{\text{ft}^2 \times \text{hr} \times \text{°F}}$$



Lower the U-factor, the slower the rate of heat transfer

Note: $R = 1/U$