**Thermostat Controls**

- HVAC Overview & Thermostat Definitions
- Product Line & Features
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Thermostat Training Topics

- Short Cycle Delay
- Remote Sensors
- Residual Fan
- Intermittent Fan
- Staging
- Humidity Controls

- Differentials
- Balance Point
- Fossil Fuel and Heat Pump
- Zoning


**HVAC - Heating**

- W1 - 1st stage Heating
- W2 - 2nd Stage Heating
- E - Emergency Heating
- AUX - Auxiliary Heating
- Y - Heat pump Heating
- G - Fan
- O/B – Reversing Valve
HVAC – Ventilation Opportunities

- UV Lights
- Ventilators
- Air Filters
- Humidifiers
Cooling Air Conditioning System Components

- Condenser
- Evaporator
- Compressor
- TXV
- Blower motor
- Heater
- Receiver
- Drier
Terms & Definitions

- **Anticipation** – the activation or deactivation in advance of ambient temperature reaching set point
- **Auto Changeover** – the provision for automatically changing from heating to cooling mode or vice versa
- **Cycle rate** – number of cycles per hour
- **Differential** – The number of degrees beyond set point that the unit will start
- **HP** – heat pump
- **Wi-Fi** – wirelessly connecting electronic devices usually for Internet access. Standard is often referred to as IEEE 802.11
**Differential Settings**

- Differential is the difference between the setpoint and the maximum allowed deviation from setpoint before the system calls for Heating or Cooling.
- Differentials are usually between 1°F and 8°F.

![Diagram](image-url)
Balance Point

- Balance Point control is used to turn OFF inefficient equipment and turn ON more efficient equipment.
Fossil Fuel or Add-On

- Indoor coils are available in a number of configurations to fit various types of heating systems. Coils are supplied for upflow, horizontal and downflow furnaces.
- The Braeburn multi-stage thermostats controls the A-coil with W1 in 1H/1C version and with W2 in multistage models.
- Honeywell TH8321 permits heat pump and fossil fuel to be enabled simultaneously (even with fossil fuel selected as add-on) which could compromise equipment life expectancy.

Electric Supplementary Heat

- A-Coil can be Upstream or Downstream.
Heat Pump Indoor Coil Operation

1st Stage Cooling Mode Operation
12 SEER System Model

Seasonal Energy Efficiency Ratio (SEER) = Total BTU cooling / Total Watt hour per year
Short Cycle Delay

- Protection of compressor to reduce excessive cycling
- 5 minute short cycle delay - prevents compressor freeze-up
  - Applied after call for compressor is deactivated
- Used for minimum off time
- Not needed by some systems - feature provided by another control