CONNECTED THERMOSTAT NEWSLETTER ARTICLE

Note for Utilities: This newsletter content is designed to promote connected thermostats to end-users. Content may be edited for length and used in a print or email utility newsletter.

CONNECTED THERMOSTATS: SET FOR SAVING

How many times have your employees disagreed over the temperature in their space? When one person is too hot, another is too cold. The set-point goes up and down depending on who arrives early and who stays late. For a building owner, this can mean unhappy tenants and wasted energy. For a business owner, it gets in the way of employee productivity.

Today's connected thermostat may be the answer to this problem. It optimizes control of the HVAC system based on programming and occupancy scheduling. Programming allows the thermostat to accurately match the HVAC system's operation with the desired occupied temperatures. Then, during the evenings, weekends, or holidays, the connected thermostat takes control of the HVAC system operation to minimize wasted energy while the space is unoccupied.

Connected thermostats vary significantly in features and options. The one thing they all have in common is Wi-Fi connectivity, and the ability to schedule setback temperatures along with cycling the fan during unoccupied periods. When comparing products, there are really only three main types of thermostats currently on the market: manual, programmable, and connected:

- **Manual** thermostats are quickly being phased out. Although they are the cheapest option upfront, they do little to optimize comfort and can waste large amounts of energy.
- Traditional **programmable** thermostats have been around for decades as a solution to providing more schedule-based control. The perks that come with programmable thermostats include time of day and weekday/weekend customization and meaningful energy savings compared to manual thermostats. However, any programming changes for these thermostats must be done manually at the thermostat and are locked in until someone manually changes them.
- **Connected** thermostats have many similar features as traditional programmable thermostats; however, they also offer an option for remote programming capabilities and more advanced control features to optimize HVAC system operation. There are many manufacturers that call their thermostats "smart" in their marketing literature, but in actuality, many are considered "connected" thermostats.

Programming connected thermostats correctly saves energy and makes it easier for owners to manage their HVAC system. Incentives for connected thermostats are available to offset installation costs; make sure your desired product is listed on BPA's qualified product list (QPL) and **check with your HVAC contractor or with us first** to make sure your project is eligible.

Subhead: Benefits of Connected Thermostat
Whether a thermostat is programmable or connected, they both save energy in roughly the same manner by allowing the user to program an ideal set-point temperature for each space along with multiple setback temperatures. However connected thermostats also have the ability to cycle the fan during unoccupied periods, and ensure that user overrides only last for a short period of time. In addition, they allow remote monitoring and control, making it easy to change set-points or be alerted to unexpected HVAC system operation even if not on-site.

Additionally, many commercial HVAC systems run the fan 24/7 as a simple control strategy that continually ventilates the building. Unless the business is operating 24/7, the fan stays on even during unoccupied hours, which wastes a large amount of fan energy. Connected thermostats reduce this wasted energy by cycling the fan during unoccupied periods, ensuring that it only runs when there is a call for heating or cooling to meet setback temperatures.

Subhead: Connected Thermostat Features
Connected thermostats offer many additional features that make them an attractive choice over manual and traditional programmable thermostats, including:

- Flexibility with programming set-point and setback temperatures remotely via Wi-Fi, through a website, or via a downloadable app. This allows for easy access to the thermostat settings from anywhere, at any time.

- Programming capability beyond standard programmable thermostats. Standard programmable thermostats offer scheduling for only seven days of the week. Several connected thermostats offer additional scheduling for 365 days of the year to account for holidays, vacations and special events. Additionally, they offer multiple setback schedules to accommodate the unique needs of the space.

- Easy setup with step-by-step instructions on a vibrant, colorful touch screen. Others may offer a user-friendly website or app that walks you through the setup process via your desktop computer, tablet or smartphone.

- Time-saving group scheduling capability, allowing the user to easily consolidate and customize settings across multiple thermostats by combining and sorting them into groups that may operate with similar set-points and schedules. For buildings with many single-zone systems serving spaces with similar needs, this eliminates the time needed to individually program each thermostat with the same settings.

- Access to local weather data via their app to help users identify and pre-schedule future heating or cooling needs the space may require. Several thermostats are now able to identify weather patterns and autonomously adjust the thermostat temperature to suit the needs of the space.

- Web-based apps to provide users with access to email notifications, alerts, and reminders. This can be useful in alerting an owner to problems with the HVAC system in real time. For example, if the temperature happens to rise above 80 degrees for five minutes, an email alert can be sent to the end user. Or the system can send notifications

if the humidity drops below 20 percent. Many connected thermostats allow for customizable alerts to be set up so that notifications can be sent for a variety of user-defined reasons.

- The ability to retain user settings after a power failure. Once you program the thermostat the first time, those settings are retained through on-board memory so that you don't have to repeat the process in the event power to the thermostat is disrupted or lost.

- Voice control through devices such as Amazon's Alexa, Google, or Apple's Siri. This allows for a simple voice command in one area of the building to communicate with a thermostat located in a completely separate area of the building.

Several connected thermostats can also be paired with accessories such as remote temperature sensors, and remote motion sensors. These sensors allow for programming of automations to help save additional energy. For example, if an occupancy sensor determines that a conference room is vacant, the system may be commanded to go to the setback temperature. Other products have learning capability. So, after adjusting the thermostat up and down over a few days, it will begin learning the preferred settings for the space and suggest a personalized schedule.

Although connected thermostat features vary between different manufacturers, they all have the same ability to pay for themselves in energy savings alone. And now, with incentives, there is no reason to wait to install them.

Not all products on the QPL will have all these features, so compare your options to get the best product to meet your needs. **To get started, check with your preferred HVAC contractor or contact us for more information**.

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