

MyTemp™ System

Room-by-Room Temperature Control and Energy Management



User Manual

Congratulations! Your home has the most advanced and effective residential climate control system available anywhere. Years of research, development, and testing went into this system to achieve one goal: to make every room in your home as comfortable as possible. Your home should feel better than any home you have lived in before.

We designed the MyTemp™ system for ease of use while providing all the features needed to give you complete control over your comfort and energy usage. While there are many things you can choose to control, after initial set up the system should seldom require changes. The system automatically maintains everyone's comfort all the time. In fact, you can forget about the system – at least until you visit someone else's home. When you do notice the difference, please tell your friends about Home Comfort Zones. They will thank you.

We're sure you will enjoy the system as much as we enjoy providing it. We welcome feedback, comments, and suggestions about our system and service. Please contact customer support or email support@homecomfortzones.com.

Enjoy your comfort!

The MyTemp Staff

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System Quick Start

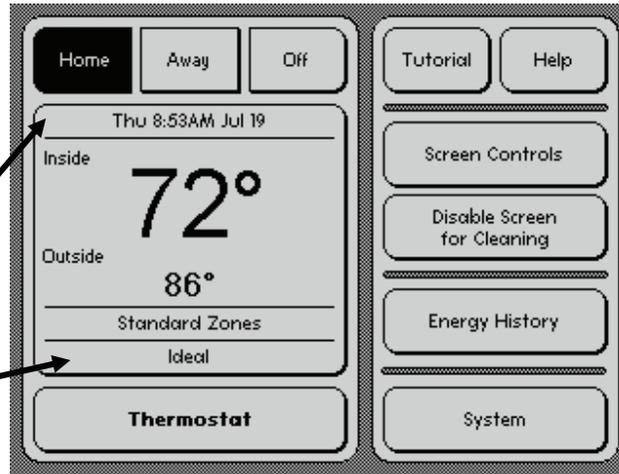
Use the graphical table of contents shown below to navigate within this manual. The home screen as shown below is the first screen you see after your system is installed. From here, you can access all the system features.

Home/Away: See page 16. Choose between your normal schedule and away schedule.

Off: See page 16. Turn off the system if necessary.

Time and date: See page 30. Press to change either the time or the date.

Current Activity: See page 18. Press to view the reason for the current conditioning activity.



Thermostat: See page 19. Use one of three possible thermostat modes to set the comfort ranges in your home.

System: See page 29. Set parameters that help the system meet your needs.

Tutorial: Access an instructional lesson to get yourself started.

Help: View the 24/7 customer support phone number and an introduction to the context-sensitive help system.

Screen Controls: Change the brightness and contrast of the display to suit your needs.

Disable Screen for Cleaning: Clean the screen when desired.

Energy History: See page 51. Review the energy use for the house as well as individual rooms. This screen also provides an overview of the current conditioning state for each room.

Using the Touch Screens

The home screen and all other screens in the MyTemp Climate Control System are touch screens. Touch screens are designed to be pressed anywhere using your finger or fingernail. Do not use sharp objects. When using a fingernail, some users like to turn their hands so they can see their palms. This makes it easier to touch the right spot and helps keep the screen clean.

We have tried to create an intuitive system. In general, touch an area that represents a choice you want to make or a topic you want to view. This action has a visual effect on the screen or takes you to another screen where it should be clear what to do next.

We designed the system to minimize the chances for unwanted or unexpected outcomes. Don't be afraid to explore. If you make changes you don't want, simply select the **Cancel** button, which returns you to the previous screen without saving any changes you made.

Select the **Help** button at any time to view information about the current screen and how it's used. Much of the information in this manual is available at the touch screen.

Index of Frequently Asked Questions

The following frequently asked questions are answered at the end of this manual:

- How do I set the temperature in my house?
- Why do I have two temperatures I need to set? My old thermostat only had one temperature.
- Why does my lower limit change when I adjust my upper limit? And vice versa?
- How do I adjust the minimum separation between the upper and lower limits?
- Most of the vents blow too hard at different times. How can I reduce the airflow?
- I'm only concerned about too much airflow in one or two rooms. How can I reduce the airflow to just those rooms at all times?
- How do I reduce the airflow in my bedrooms zone at night?
- I need ample airflow for temperature control, so how do I reduce the noise?
- How do I adjust the system to use less energy when the house is empty?
- How do I prevent the system from cooling on a mild day or in the winter?
- How do I prevent the system from heating on a warm day or in the summer?
- How can I make the system use only circulation when windows are open?
- How can I temporarily stop heating or cooling in a room?
- How can I temporarily start heating or cooling in a room?
- How do I adjust the time duration for a Smart Controller's temporary conditioning request?
- How do I adjust the temperature range of a Smart Controller's Saver mode?

Index of Frequently Asked Questions

- How do I prevent my child from accidentally changing the temperature of a room with a Smart Controller?
- What's the difference between the three thermostat modes?
- Why use the Programmable thermostat mode?
- How many time periods can I set for one day?
- Why should I use the Programmable Zones thermostat mode?
- What is the difference between Programmable (or Programmable Zones) thermostat mode and the Program button?
- Why use programs?

Important Concepts

To get the most out of your system, you should understand the concepts described in this section. In addition, see page 56 for a system diagram and a simple explanation of how the system works.

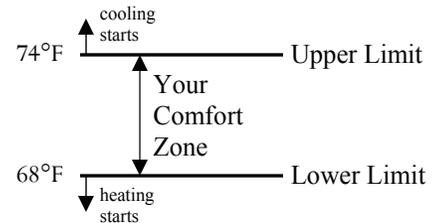
1. Your personal comfort range
2. Upper and lower limits
3. One thermometer versus many temperature sensors
4. Our system works with your existing HVAC equipment
5. The temperature's in the feeling—and you may be surprised
6. Heating-cooling auto-change-over
7. Saving as much energy as possible
8. HVAC limitations

Your Personal Comfort Range

Your personal comfort range is a range of temperatures comfortable to you. A degree higher than the upper limit and you want cooling. A degree cooler than the lower limit and you want heating. Each person in your home may have different comfort ranges that change from season to season, room to room, activity to activity. You can set different comfort ranges for different rooms. You can set comfort ranges to automatically follow a weekly schedule, and you can save these schedules as programs.

Upper and Lower Limits

You set comfort ranges using the touch screen. For each comfort range, you set an upper limit for the temperature that causes air-conditioning to start and a lower limit for the temperature that causes heating to start. The system turns on heating or cooling as needed to keep the temperature between the limits. It even uses circulation to help balance temperatures between rooms when heating or cooling is not required. Circulation is only used when it is cost effective for balancing temperatures. The system saves energy by reducing conditioning when possible, and it turns off circulation when unhelpful or unneeded.



The lower and upper limits must differ by at least three degrees. We recommend a six-degree separation. Most users don't notice a few degrees of difference as long as they are inside their comfort range. However, one degree outside the comfort range can be uncomfortable. Therefore, the system's priority is to keep every room inside its comfort range. This means that sometimes a room may be heated even if it is a few degrees above its lower limit. Or it may be cooled when it is a few degrees below its upper limit. It may receive circulation even if it is in the middle of its comfort range. The reasons for this are described in the following section.

A narrow comfort range uses more energy than a wide comfort range. When there is only a few degrees between a call for heating and a call for cooling, the HVAC equipment may heat a few rooms for a few minutes, then immediately cool a few other rooms for a few minutes, then heat, then cool, and so on. The system does its best to satisfy all comfort ranges, which may use a lot of energy. Most people prefer at least a few hours between heating and cooling cycles. We recommend using the widest comfort range that maintains your comfort. This saves the most energy. Many people use at least a six-degree range.

As outdoor temperatures decrease, rooms start to approach their lower limits. As outdoor temperatures increase, rooms approach their upper limits. During transition seasons when little heating or cooling is needed, the rooms are more evenly spread between their upper and lower limits.

*We recommend
using the widest
comfort range
that maintains
your comfort.*

One Thermometer Versus Many Temperature Sensors

A conventional thermostat has a thermometer plus controls for setting the temperature you desire. For heating, you use the controls to set the temperature at which you want heating to start. When the thermometer reports a temperature below the set temperature, the thermostat calls for heat. The thermostat continues to call for heat until the thermometer reports that the temperature is above the set temperature. With a conventional thermostat, the temperature sensing is in the same location as the thermostat. Therefore, the area around the conventional thermostat is the only area within the home with accurate temperature control.

(continued)

Important Concepts (continued)

With the MyTemp system, there are many temperature sensors spread throughout the house. The Smart Controllers are the temperature sensors. You cannot define your comfort ranges at the Smart Controllers; you do this at the touch screen. Since you probably don't spend much time near your touch screen, it does not contain a temperature sensor.

Our System Works With Your Existing HVAC Equipment

The MyTemp system works with the HVAC equipment you already have. When the system senses that one or more rooms aren't within their comfort zones, it initiates a heating or cooling cycle using your HVAC equipment. Your equipment (like all residential HVAC equipment) requires a certain amount of airflow to work effectively. This airflow is more than any single vent can handle. Several vents must be open at all times to satisfy your existing HVAC equipment. Even if only one room is calling for conditioning, several rooms receive conditioned air.

Some rooms may receive conditioned air when you're not expecting it. This is normal and necessary.

For example, imagine your kitchen is currently 67.5°F and its lower limit is 68°F, and all other rooms are above their lower limit. The system begins heating to raise the temperature in the kitchen, but the system knows the kitchen vent can not handle all the airflow from your HVAC. Since the system is smart, it also heats just enough other rooms to satisfy the HVAC equipment. How does the system decide which rooms to condition? It usually chooses the rooms that are closest to their lower limit. However, there are also parameters you can set to advise the system how to make decisions that better satisfy your needs. Not only is the system smart, it will take advice from you.

The important concept to remember is that some rooms may receive conditioned air when you're not expecting it. This is normal and necessary for the HVAC equipment.

The Temperature's in the Feeling—And You May Be Surprised

The installer set your system to function in **Programmable** thermostat mode with a simple schedule. The three possible thermostat modes are described in the following sections, but we strongly recommend that you use the factory-installed program for a few days so you and your family can experience the feeling of *every* room maintained within your comfort range at all times.

As needed, adjust the lower and upper limits to match your comfort range. You may be surprised to find that a temperature you previously thought you preferred is either too cool or too warm. For example, suppose you are accustomed to a house where 74°F at the thermostat produces 68°F in your family room, 70°F in your kitchen, and 72°F in your office. If you prefer 70°F, you are probably used to adjusting your thermostat anywhere from 72°F (to get 70°F in your office) to 76°F (to get 70°F in your family room). You continually readjust the thermostat to maintain this temperature in the different rooms. With our system, you simply set the lower limit to 70°F, the actual temperature you prefer. Every room in the house stays above 70°F.

Heating-Cooling Auto-Change-Over

Many people have never experienced an auto-change-over thermostat. This is a thermostat that automatically controls both heating and cooling so you don't need to change the settings on days that need both heating and cooling. An auto-change-over thermostat works like a comfort range—it has a lower limit and an upper limit. The difference is that the Home Comfort Zones system maintains several different comfort ranges for different rooms at the same time.

Saving As Much Energy As Possible

In general, the default settings are a good balance between comfort and energy savings. However, the importance of comfort versus energy savings varies from person to person. The MyTemp system provides the information and adjustments necessary to enable you to control

The system can maintain several different comfort ranges for different rooms at the same time.

(continued)

Important Concepts (continued)

your energy usage as well as your comfort.

Your system can help you save energy in several ways. The following suggestions are described in detail later in this manual.

- Use the widest comfort ranges possible. Decrease the lower limits to use less heating and increase the upper limits to use less cooling.
- Divide your house into zones in which the rooms in each zone have the same usage pattern during the week. Use wider comfort ranges when the zones are unoccupied, especially for more than four hours. The system automatically estimates the change in yearly energy costs as you adjust the comfort schedules for different zones. Proper settings save energy without affecting the comfort in rooms when they are occupied.
- Use the Smart Controller saver mode in rooms that are not being used every day.
- Use the away mode whenever your home is unoccupied for more than four hours. If you set your return time, your home will be comfortable when you return.

For greater energy savings, use settings that encourage circulation.

- Use settings that encourage circulation. Circulation saves energy by moving heat from an area with too much heat to an area that can use heat. This is especially important if you have a multi-story home since warmer air rises to the top floor while cooler air falls to the bottom floor. Circulation helps balance temperatures between floors without using conditioning.
- As much as possible, maintain airflow pressure at the highest setting with which you are comfortable. Higher airflow pressure means that fewer rooms require conditioning to satisfy the HVAC equipment. This means each room is conditioned at a higher rate and fewer rooms are conditioned that are not calling for conditioning. With lower airflow pressure, more rooms must receive conditioning to lower the airflow pressure. This means each room is conditioned at a lower rate and more rooms are conditioned that are not calling for conditioning.
- Use the energy history graphs to identify rooms that are calling for the most conditioning. If the 24-hour heat time or cool time for a room is much higher than most other rooms, then this room is causing extra conditioning in other rooms. Extra conditioning occurs when a room receives conditioning even though its temperature is within its comfort range. Less extra conditioning means more energy savings. For these rooms, reduce energy usage by reducing the need for conditioning in the rooms that are calling for the most conditioning.

The simplest way to reduce conditioning is to change the upper or lower limit of the comfort range for that room, especially during peak conditioning hours. You can also improve the room's insulation by using window treatments (blinds, tinting, curtains, and so on); adding more insulation to outside walls, ceiling, and floor; and sealing air leaks around windows and outlets. Other methods include increasing airflow to the room by improving the return-air path (poor air return is a common problem), increasing the size of the duct serving the room, or adding another duct and vent to serve the room.

HVAC System Limitations

Even the best HVAC and duct system has limitations. For example, heating and cooling capacity is based on the local average climate, so a record-setting hot or cold day may require more cooling or heating capacity than the equipment can supply. With HVAC equipment, extra capacity is not better. Oversized equipment operates less efficiently and can cause temperature control problems. So a properly designed system will be most efficient all of the time and have the capacity to keep you comfortable 99% of the time. However, for a few hours on the hottest or coldest days the temperature in a few rooms may go outside their comfort ranges.

The interior walls of homes are not good insulators, so it is relatively easy for heat to flow between rooms, especially when the doors are open or if the rooms share a wall. Therefore, it is not possible to maintain a large temperature difference between nearby rooms. For example in winter, a room in saver mode may get only 10 degrees cooler than the heated room next to it. A room next to a room in saver mode will need more conditioning because of heat flow through the wall between the rooms.

It is not practical to set the upper limit of the comfort range in one zone less than the lower limit of the comfort range of another zone. For example, do not use our system to keep a wine room at a constant 55°F while trying to maintain the rest of the house at 71°F. This would require nearly continuous conditioning using heating and cooling alternately. It would be like leaving the refrigerator door open at all times. We recommend that you maintain three degrees

Even if only one rooms calls for conditioning, a few other rooms are conditioned also.

(continued)

Important Concepts (continued)

difference between the highest lower limit (the highest temperature that calls for heat) and the lowest upper limit (the lowest temperature that calls for cooling).

Your heating and cooling equipment produces a certain amount of conditioning, and this requires a certain amount of airflow at all times. Even if only one room calls for conditioning, a few other rooms are conditioned also. This means it is not possible to just condition a small fraction of your house. This limitation may cause a room to not receive conditioning when outside its comfort range, or some rooms to receive extra conditioning. Designing and installing an HVAC system is a human process, and humans make mistakes. Sometimes architecture and aesthetics are given priority over good HVAC design, forcing a compromise in the location of the HVAC equipment, the supply duct system, or the return-air paths. Without special care, remodeling almost always increases HVAC supply ducting and return problems. The MyTemp system does an excellent job of compensating for mistakes and weaknesses, and keeps all rooms as comfortable as physically possible.

A Practical Example

Our system is flexible enough to compensate for inadequate ducting.

Sometimes inadequate ducting causes unsatisfactory results that you can overcome with a simple change in parameters. The following scenario occurred within an extensively remodeled house built about 1910:

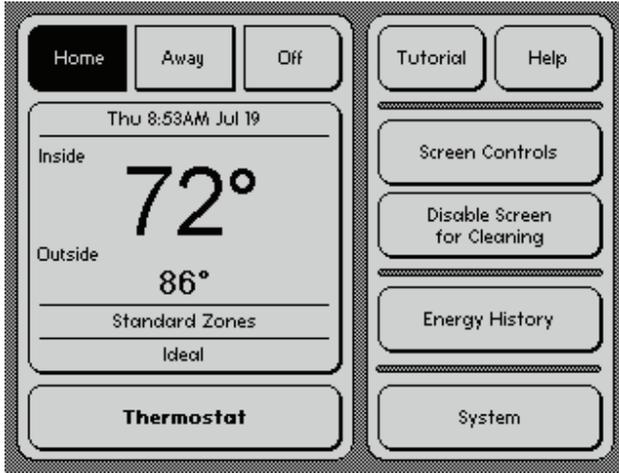
This house contained three rooms on the top floor, each with one small duct. One room was unused, so it was placed on saver mode. On hot days, the air conditioner ran continuously to keep the other two rooms cool, but their temperatures always remained *above* their upper limits. Rooms on the bottom two floors also had to receive conditioning to satisfy the HVAC equipment, causing so much extra conditioning that they became uncomfortably cool. The problem was that the two ducts into the rooms on the top floor not in saver mode were not enough to keep the top floor cool because of the additional heat leaking in from the room in saver mode.

Important Concepts

The simple and unexpected solution was to take the unused room out of saver mode so that it also received air conditioning. The airflow through three ducts was enough to cool the top floor so the temperatures in all three rooms dropped into their comfort ranges. Circulation immediately started, mixing the warmer top-floor air with the cooler bottom-floor air. This reduced the need for cooling the top floor while recovering the extra cooling from the bottom floor. This simple parameter change reduced the air conditioner's run time from 12 hours per day to four hours—and with all the rooms always inside their comfort ranges.

This example illustrates that some features such as saver mode may not be effective energy savers when the HVAC system has significant weaknesses, but that with proper adjustment our system is flexible enough to compensate.

The Home Screen



The buttons on the home screen are:

Home: When selected, indicates the system is in **Home** mode. This is the setting for normal day-to-day conditioning.

Away: Allows you to save money by reducing conditioning when you're gone for an extended period of time (four or more hours). See page 20 for information about setting your away comfort ranges.

Off: Turns the system off. *Caution:* Your home could be damaged if the temperature drops below 32°F for sustained periods.

Tutorial: Accesses an interactive tutorial that shows you how to program a comfort schedule.

Help: Provides the Home Comfort Zones support phone number and an introduction to the help system. If you have a Home Comfort Zones modem, this button also leads you to the Home Comfort Zones Connected Assistance service. See page 54 for more information about Connected Assistance.

Screen Controls: Allows you to adjust the screen's brightness and contrast as well as convert to white text on a black background.

Disable Screen for Cleaning: Disables the screen for 20 seconds so you can clean it. *Caution:* Use a soft, damp cloth, *not* cleaning solutions, which can damage the display.

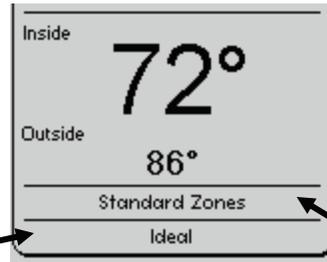
Energy History: Provides a 24-hour history of temperature and HVAC system use in your home. You can also check each room for its current temperature and system status.

System: Allows you to customize your system settings as described starting on page 29.

Thermostat: Allows you to adjust your upper and lower limits. You see one of three screens depending on which thermostat mode you choose. These modes are described in the following section.

Press anywhere in the region shown at right to view the current system activity. A screen appears that describes the reason for the current activity. This screen (not shown) contains three activities—**Heating**, **Cooling**, **Circulating**—that you press if you are interested in why a particular conditioning function is or isn't currently active.

This area shows the current activity.



Inside: Current temperature at a designated Smart Controller that was chosen by the installer to represent the inside temperature.

Outside: Current outside temperature as reported by the outside temperature sensor

Current Program: Program that is currently active. This area is not visible when you use the **Basic** thermostat. Refer to the next section for a description of the three possible thermostat modes.

(continued)

The Home Screen (continued)

The following activities may appear when you press the **Activity** button on the home screen:

Starting up	Only displayed when the system is first turned on.	Cooling	Performing a cooling cycle.
Ideal	No conditioning cycle required because your home is within all temperature limits.	Ending Cooling	The air conditioner has stopped but cool airflow continues while the air conditioner warms.
Between Cycles	Preparing for the next conditioning cycle. The system knows it should start a conditioning activity, but at the moment it can't. This could be for many reasons, including an outside temperature requirement or too few rooms allowed to be conditioned.	Quiet Cooling	One or more rooms in the current cooling cycle are set to Quiet mode. The system opens more vents to reduce airflow noise.
Starting Circulation	Preparing to start a circulation cycle.	All Off	The system was turned off.
Circulating	Using circulation to balance room temperatures and avoid heating or cooling.	High Heating	For multistage equipment, using the high stage to heat the home.
Starting Heating	Preparing to start a heating cycle.	Aux Heating	For multistage equipment, using secondary heating to meet current heating needs.
Heating	Performing a heating cycle.	High Cooling	For multistage equipment, using the high stage to cool the home.
Ending Heating	The furnace has stopped but warm airflow continues while the furnace cools.	Quiet High Heating	For multistage equipment, using the high stage to heat the home with one or more rooms set to Quiet mode.
Quiet Heating	One or more rooms in the current heating cycle are set to Quiet mode.	Quiet Aux Heating	For multistage equipment, using secondary heating to meet current heating needs with one or more room set to Quiet mode.
Starting Cooling	Preparing to start a cooling cycle.	Quiet High Cooling	For multistage equipment, using the high stage to cool the home with one or more rooms set to Quiet mode.

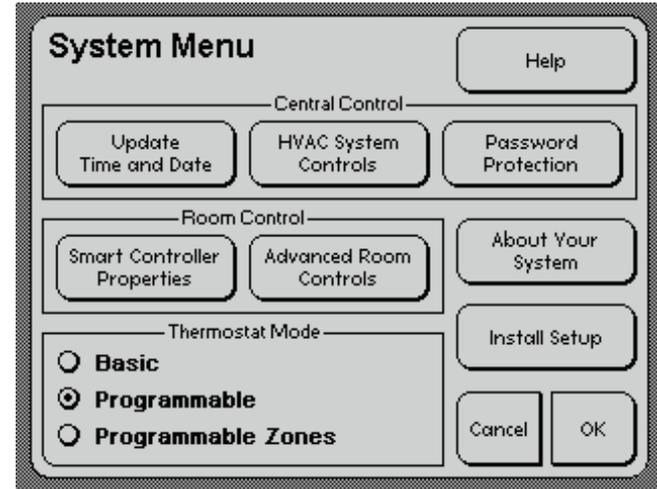
Selecting a Thermostat Mode

You can choose one of three thermostat modes to control your home's temperature, as follows:

Basic: This is the simplest mode. **Basic** mode allows you to set a lower limit and an upper limit for the entire house. The system applies your settings to all rooms in the house, but only conditions rooms that go outside their limits.

Programmable: Similar to **Basic** mode in that it applies settings to all rooms in the house. However, in this mode you define comfort schedules based on time of day and day of week. This allows you to save energy because, for example, you can set the system to condition less while you're asleep or at work. The possibilities for cost savings extend to anytime your room usage patterns change and anytime seasonal changes and other circumstances affect your comfort schedule.

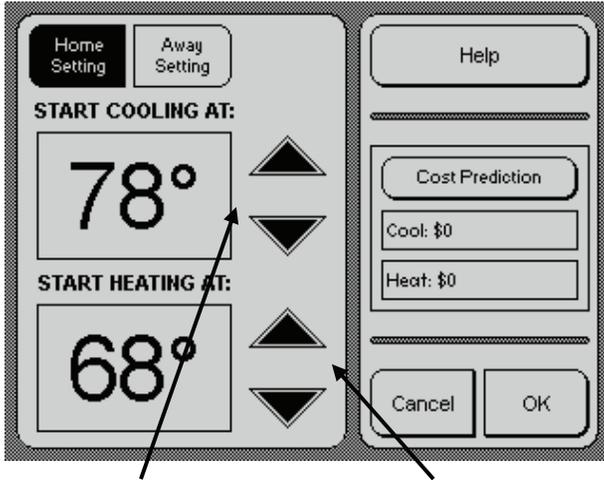
Programmable Zones: Same as **Programmable** mode, except that now you can group rooms into zones with their own comfort schedules based on time of day and day of week. This allows you to customize your home based on room usage patterns.



To set the thermostat mode, press **System** on the home screen, and then select either **Basic**, **Programmable**, or **Programmable Zones**. As shown above, **Programmable Zones** mode is selected.

(continued)

Selecting A Thermostat Mode: Basic Thermostat Mode



Press these arrows to tell the system when to turn on the air conditioner.

Press these arrows to tell the system when to turn on the furnace.

Basic thermostat mode allows you to set a lower limit and an upper limit for the entire house. The screen at left appears when you select **System > Basic**. This is the temperature control screen.

Start Cooling At: This is the upper limit and indicates the warmest indoor temperature you allow before air conditioning begins. The higher this temperature, the greater the energy savings.

Start Heating At: This is the lower limit and indicates the coolest indoor temperature you allow before heating begins. The lower this temperature, the greater the energy savings. In the summer, you can set this extremely low to prevent the furnace from turning on.

Away Setting: By default, you set temperatures for the **Home Setting**. Press **Away Setting** to set temperatures to save energy when you are gone for long periods. The default temperature settings are **Heat** at 60°F and **Cool** at 85°F.

Cost Prediction: When your system was configured, the installer entered a base-line utility cost. Using this information, the system estimates how much your new temperature settings cost you on a yearly basis. There are several options for calculating estimated yearly costs. See page 53 for details.

Selecting A Thermostat Mode: Programmable Thermostat Mode

Programmable thermostat mode allows you to define varying comfort ranges based on time of day and day of week. The screen at left appears when you've selected **System > Programmable** to define your thermostat mode.

This mode requires you to first select the day (or days) you want to schedule, then the time ranges, then the comfort ranges for those time ranges. For example, you may want the temperature warmer when you get up for work or cooler on summer weekends.

On a given day, the first listed time does not have a temperature setting above its bar because the temperature limits are carried over from the previous day. Likewise, the last listed comfort range does not have an end time associated with it because the system infers that the first time listed for the next day is its end point. For example, as shown at right the comfort range of 70°F to 76°F lasts from 7:00 a.m. to 9:00 p.m.

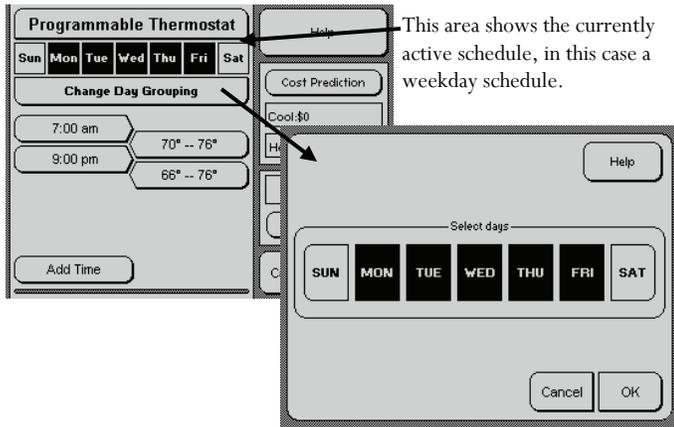
The process for using the programmable thermostat is described on the following pages.

The screenshot displays the 'Programmable Thermostat' interface. At the top, there is a title bar 'Programmable Thermostat' and a row of day selection buttons: Sun, Mon, Tue, Wed, Thu, Fri, Sat. Below this is a 'Change Day Grouping' section. The main area shows a grid of time slots and temperature ranges. The first slot shows '7:00 am' with a temperature range of '70° -- 76°'. The second slot shows '9:00 pm' with a temperature range of '66° -- 76°'. An arrow points from the text below to the '9:00 pm' slot. At the bottom left is an 'Add Time' button. On the right side, there is a vertical column of buttons: 'Help', 'Cost Prediction', 'Cool:\$0', 'Heat:\$0', 'Standard', 'Program', 'Cancel', and 'OK'.

Programmed comfort ranges displayed to indicate their start and end times.

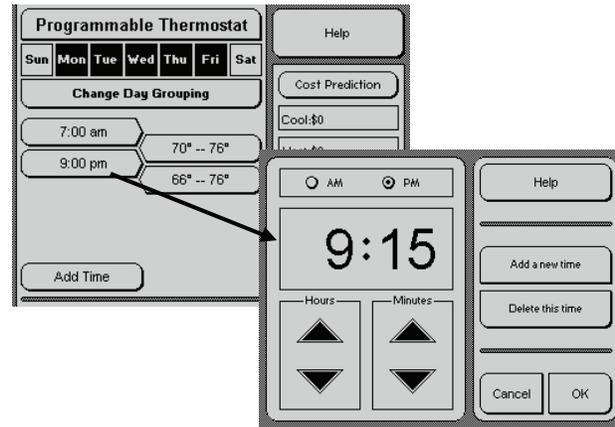
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Selecting a Thermostat Mode: Programmable Thermostat Mode (continued)



1. Scheduling the Days

First, press **Change Day Grouping** to select the day (or days) of the week that you want to group together with the same comfort schedule. The currently selected days are highlighted in black. Press a selected day to un-select it; press an un-selected day to select it. Press **OK** when you are done.



2. Adjusting the Time Schedule

On the left side of the screen, press on the time that is closest to the time you want the new limits to begin. On the next screen, press the up and down arrows to adjust the time accordingly, then press **Add a new time**. You'll see the new time listed along with the others on the **Programmable Thermostat** screen.

Alternatively, you can press **Add Time** on the **Programmable Thermostat** screen. This button doesn't appear when you have five

Selecting a Thermostat Mode: Programmable Thermostat Mode

times already listed on the screen.

Depending on what's already programmed, you may need to adjust a previously listed time to complete the new time range. Do this by pressing on the time, and then adjusting it with the up and down arrows. Press **OK**.

When you increment the hours past midnight or noon, the **AM/PM** indicator changes. Also notice that you can only change the minutes in 5-minute increments.

To delete a time from the schedule, press on it, and then press **Delete this time**.

3. Adjusting the Comfort Range

On the **Programmable Thermostat** screen, press the comfort range that you want to adjust. For example, 70° — 76°. On the next screen that appears, a temperature control screen similar to that shown on page 20, use the up and down arrows to adjust the upper and lower limits of your comfort range and then click **OK** to save your changes.

4. Setting Optional Parameters

The temperature control screen for the programmable thermostat mode differs from that shown on page 20 (which is for basic mode) in that it includes two buttons, as follows:

Noise Profile: From the temperature control screen, you can choose to place the given comfort range in **Quiet** mode to lessen noise.

Note: In **Quiet** mode, the system opens more vents to reduce air pressure. This may cause increased energy usage and in extreme cases may not allow the system to accurately control difficult rooms.

Circulate: From the temperature control screen, you can also indicate how actively you want to run circulation during the given comfort range. Choose **High**, **Medium**, or **Low**. **High** circulation provides the best temperature control and the most economical performance, but it causes circulation to be on the greatest amount of time. **Low** circulation means that this comfort range rarely, if ever, participates in circulation; temperatures could vary more within the comfort range.

(continued)

Selecting A Thermostat Mode: Programmable Zones Thermostat Mode (continued)

Zones lists all your zones.

This area displays the currently active zone.

Next Zone changes the currently active zone by cycling you through the zones you have created.

Zones	All Other Rooms	Next zone	Help					
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Cost Prediction	
Change Day Grouping							Cool:\$0	
7:00 am		70° -- 76°					Heat:\$0	
9:00 pm		66° -- 76°					Standard	
Add Time							Program	
							Cancel	OK

The **Programmable Zones** thermostat mode allows you to group rooms into zones. A zone represents all rooms that follow the same usage pattern, and therefore, have the same comfort schedule. You can divide your home into any number of zones from one up to the total number of Smart Controllers you have (where each Smart Controller corresponds to a room). Always use the smallest number of zones that serves your needs.

Think of a zone as a container. Into this container you can add and remove rooms as desired. With the procedure described in the next section, “Creating Zones,” you can create a zone named, for example, *Bedrooms*. Suppose that *Bedrooms* uses a comfort range that sets the lower limit to 60°F and the upper limit to 75°F, from 10:00 p.m. to 6:00 a.m. every night. Into this container named *Bedrooms*, you drop the names of all the bedrooms. Zones makes it easy to change room usage. For example, if your child is ill and becomes uncomfortable with this comfort range, all you do is remove the child’s bedroom from the zone and create a new zone just for it. Later, you can easily move this room back into the *Bedrooms* zone.

By default, the system starts with one zone named **All Other Rooms**. If you have not defined any other zones, then **All Other Rooms** displays above the days of the week on the **Programmable Zones** screen. As you create new zones, **All Other Rooms** becomes the container for rooms you have not placed into zones. A room can only exist in one zone at a time.

Selecting a Thermostat Mode: Programmable Zones Thermostat Mode

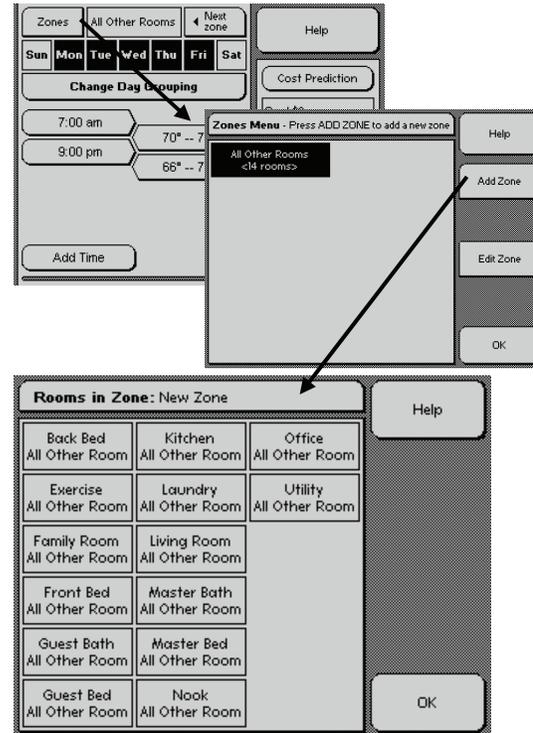
Creating Zones. When creating zones, don't think of your house only in terms of regions such as the upstairs and downstairs. Instead, think of zones as containers that group together rooms that have similar patterns of use, therefore, similar conditioning needs.

From the **Programmable Zones** screen, press the **Zones** button to open the **Zones Menu** screen. By default, **All Other Rooms** lists the total number of rooms in your house. In this example there are 14 rooms.

Next, press **Add Zone**. The **Rooms in Zone** screen appears. Notice that all rooms in the house are currently in the **All Other Rooms** zone. The room buttons display each room's name and current zone location. Press on the room buttons to select and un-select them. On the **Rooms in Zone** screen, pick the room(s) you want in the zone you are creating, then press **OK**. The **New Zone Name** (not shown) screen appears, where you can type in the name of the new zone.

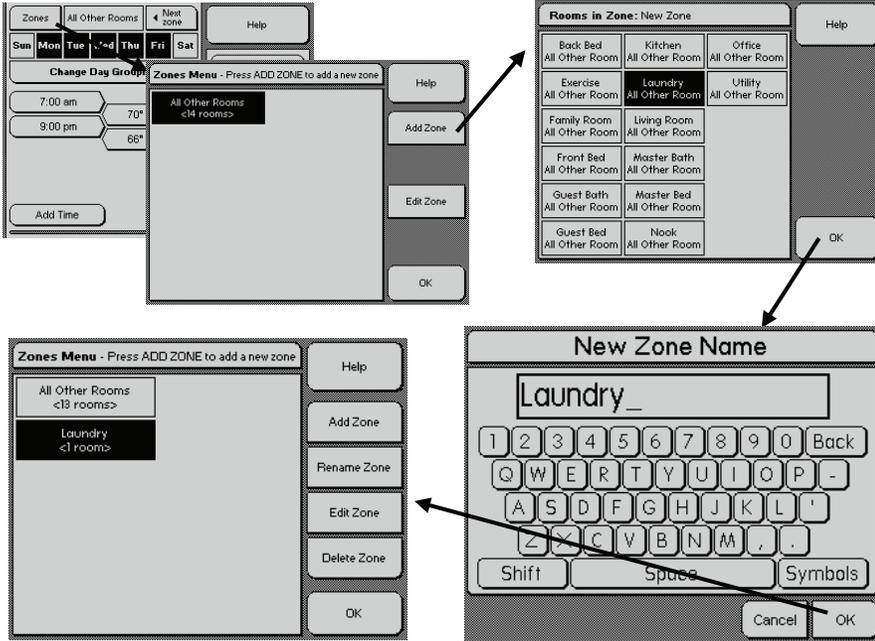
The following examples describe the procedure in detail.

After creating a zone, set its comfort schedule as described in section "Setting Comfort Schedules for Your Zones" on page 28.



(continued)

Selecting a Thermostat Mode: Programmable Zones Thermostat Mode (continued)



Example 1: Creating a Zone for One Room. The name of the room appears as the zone name on the **New Zone Name** screen.

Example 1: Creating a Zone for One Room

Suppose you want the laundry room to be the only room in a zone because it doesn't require as much conditioning as other rooms. Starting from the **Programmable Zones** screen, press the following sequence of buttons:

Zones > Add Zone > Laundry > OK

The **New Zone Name** screen appears as shown at left. Since you selected one room, the system assumes you want the name of the zone to equal the name of the room. The name of that room appears on the keyboard screen. You can delete this name and type in a new zone name if you'd like.

Pressing **OK** confirms the zone name as *Laundry*. You now have 13 rooms in the **All Other Rooms** zone and one room in the zone named *Laundry*.

Remember, the zone is a container, so if another room in your house, for example, the pantry, would benefit from the laundry zone's temperature schedule, you can add it at any time. At this point, you could rename the zone so it better represents its

Selecting a Thermostat Mode: Programmable Zones Thermostat Mode

usage. For example, *Utility Rooms*.

After creating a zone, you are ready to program its comfort schedule. The process is identical to defining a comfort schedule within the **Programmable** thermostat mode. See page 21 for details.

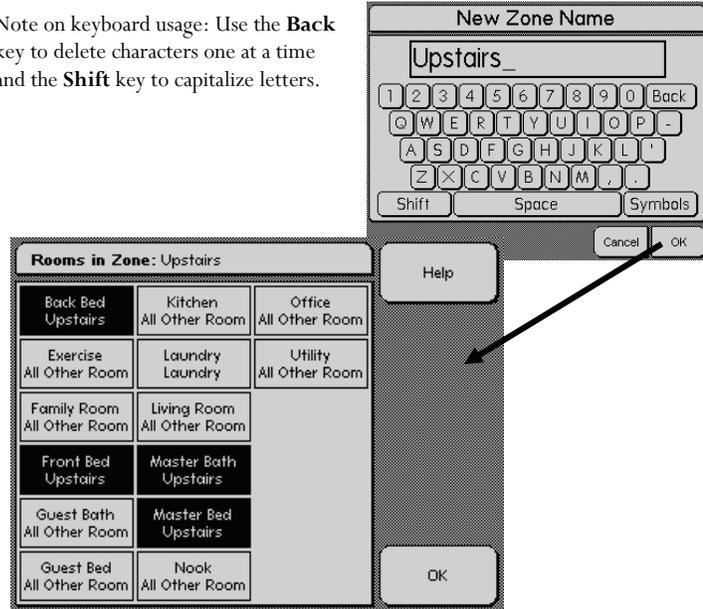
Example 2: Creating a Zone for Multiple Rooms

Now, suppose you want your upstairs rooms to follow the same temperature schedule. Rather than program each room separately, you can create a zone named *Upstairs* and place the rooms in it.

Follow the procedure as described for example one. In this case, however, in the room **Rooms in Zone** screen, select all the room located upstairs and press **OK**. The **New Zone Name** screen appears with no name above the keyboard after you've selected multiple rooms. Use the keyboard to type in the name of the zone, *Upstairs*.

Once you create a new zone, the number of rooms in the **All Other Rooms** zone decreases accordingly.

Note on keyboard usage: Use the **Back** key to delete characters one at a time and the **Shift** key to capitalize letters.



Example 2: Creating a Zone for Multiple Rooms. Use the keyboard to type the name of the new zone. When you press **OK**, the rooms appear with their new zone name.

(continued)

Selecting a Thermostat Mode: Programmable Zones Thermostat Mode (continued)

Example 3: Moving a Room from One Zone to Another

Suppose you decide that, after all, you want the laundry room to follow the same temperature schedule as the rest of the upstairs rooms. This involves moving the room named *Laundry* out of the laundry zone and into the zone named *Upstairs*.

Press **Zones**, select the zone named *Upstairs*, then press **Edit Zone**. Press the laundry room button, then press **OK**. Now, the laundry zone is empty, and you see that the laundry room is included in the downstairs zone.

The **Zones Menu** screen also allows you to **Rename Zone** and **Delete Zone**. **Rename Zone** displays the keyboard screen. **Delete Zone** deletes a zone and its associated temperature schedules. When you delete a zone, all rooms that were in that zone are automatically returned to the **All Other Rooms** zone. The **Delete Zone** button only appears after you have created your first zone because you cannot delete the **All Other Rooms** zone. In addition, you cannot rename the **All Other Rooms** zone.

Setting Comfort Schedules for Your Zones

After creating a new zone, you must define its temperature schedule. By default, the new zone is the currently active zone; therefore, changes you make to the displayed comfort schedule apply to that zone. To adjust the zone's schedule to your needs, follow the steps described for the **Programmable** thermostat mode starting on page 21. The steps are:

1. Scheduling the days
2. Adjusting the time schedule
3. Adjusting the comfort range
4. Setting optional parameters

From any zone, press a comfort range to gain access to the temperature control screen, which allows you to adjust the upper and lower limits and optional parameters. For example, you may want the upstairs zone (the bedrooms) to stay in **Quiet** mode from 10:00 p.m. to 6:00 a.m.

See page 23 for details about the noise and circulation profiles.

Note: When adjusting the comfort schedule for a zone, ensure that you're making changes to the correct zone by pressing **Next Zone** until the zone you want to adjust displays on the screen.

The System Menu

The **System Menu**, accessed from the home screen by pressing the **System** button, is the main screen through which you customize and fine tune system settings to meet your particular needs.

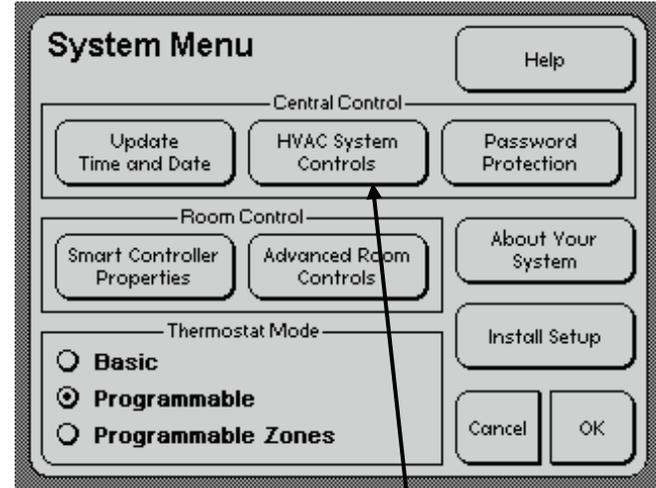
Password Protection: By default, password protection is off for the system. If you are interested in turning this feature on, please call the Home Comfort Zones customer support center for directions.

About Your System: This screen provides you with the customer support number should you need service or have questions that are not addressed in this manual. This menu also contains important technical information regarding the software and hardware release versions. This information may be required if you have a technical issue.

Install Setup: This screen is used by authorized dealers only. Changing parameters from this screen could cause your system to malfunction.

The following control buttons are described in detail in the following sections:

- Update Time and Date**
- HVAC System Controls**
- Smart Controller Properties**
- Advanced Room Controls**



The **HVAC System Controls** button is a transition screen with the following buttons, which you press to take you to other screens:

- Conditioning with Relation to the Outside Temperature
- Temperature Differential and Circulation Control
- Airflow Pressure
- View Plenum Conditions
- Multistage Control
- Outside Air Control

Update Time and Date (System >)

The screenshot shows a system menu for setting time and date. At the top, the current time is displayed as 8:45 AM. Below this, there are three columns for adjusting the time: Hours, Minutes, and AM/PM. Each column contains two arrows (up and down) for selection. To the right of these columns is a 'Help' button and a section titled 'Set Time and Date' with the instruction: 'Use the arrows to the left to set time and date.' Below the time settings, the current date is displayed as Thu 19 Jul 2007. Underneath the date, there are three columns for adjusting the date: Day, Month, and Year, each with two arrows. At the bottom right, there are 'Cancel' and 'OK' buttons.

When you press **Update Time and Date**, a screen appears where you press the up and down arrows to adjust the time and date. The day of the week is automatically selected based on the date entered.

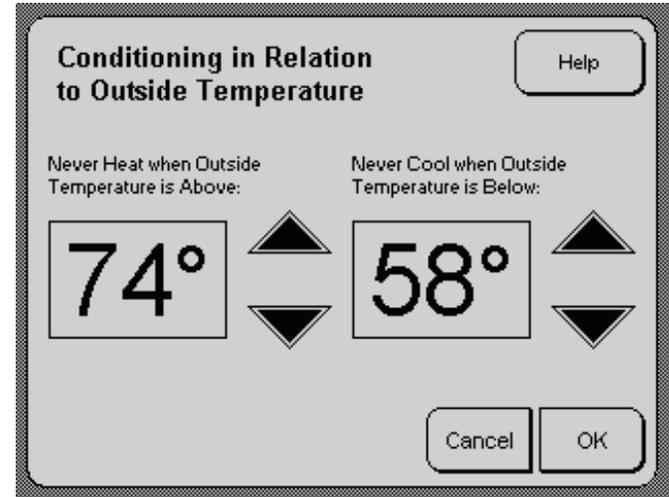
Conditioning with Relation to the Outside Temperature (System > HVAC System Controls >)

This screen allows you to define when you definitely *don't* want to use heating and air conditioning.

As long as the outside temperature is above the **Never Heat Above** limit, the furnace remains off. Likewise, as long as the outside temperature is below the **Never Cool Below** limit, the air conditioner remains off at all times.

The **Never Heat Above** and **Never Cool Below** limits override system settings based on internal temperature settings. This means, for example, that as long as the outside temperature is above 74°F, the furnace stays off even if internal temperatures in the house would normally cause the furnace to switch on.

Note: The current **Activity** states **Between Cycles** when this setting prevents conditioning that would otherwise switch on.



Press the up and down buttons to increase and decrease the temperature values.

(continued)

Conditioning with Relation to the Outside Temperature (continued)

Usage Scenarios

Use this screen to block conditioning in winter or summer for increased energy savings. For example, if you never want the air conditioner to start in winter, set **Never Cool Below** to 65°F. Or, if you never want the heater to start in summer, set **Never Heat Above** to 50°F. The system uses circulation when it can to circulate cooler air in the summer and warmer air in the winter.

In general, a typical, well-insulated home has approximately 10 degrees of thermal gain. This means that when it is 65°F outside, the inside temperature is at least 73° - 75°F. If you are interested in saving energy, set the **Never Heat Above** temperature to 60°F and the **Never Cool Below** to 65°F. This prevents air conditioning in the winter and should eliminate unnecessary heating in the summer.

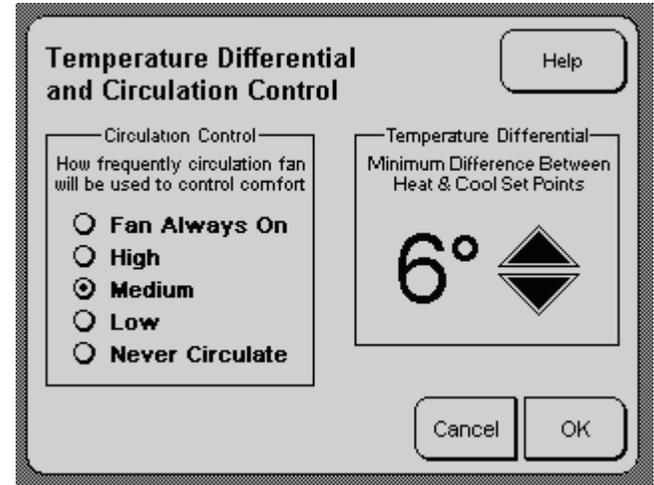
In addition to seasonal considerations, suppose your **Never Cool Below** temperature is 65°F, and you decide to have a party in December. Assume 100 people arrive and the outside temperature is 58°F. Because you have 100 people in a small confined space, the temperature in your living room could easily reach 80°F. Even if your upper limit is 77°F, your air conditioner does not turn on because the outside temperature is below the **Never Cool Below** temperature. In this case, you save energy by simply opening the windows to cool off the room.

If your priority is comfort rather than energy savings, then you could set the **Never Cool Below** temperature to 50°F, which allows the air conditioning to come on anytime the inside temperature rises above your **Cool** limit. In the party example, the air conditioning turns on as soon as the living room reaches 77°F because the outside temperature is above the **Never Cool Below** setting.

Temperature Differential and Circulation Control (System > HVAC System Controls >)

Circulation Control dictates how much circulation you want to use throughout the house to even out temperature differences.

Temperature Differential allows you to increase or decrease the default six-degree differential enforced by the system between the upper and lower limits. This means that your upper and lower limits must be at least six degrees apart. For example, if the lower limit is 68°F, then the upper limit cannot be lower than 74°F. The purpose of this differential is to prevent unwanted conditioning cycles; that is, it ensures the system does not constantly switch between heating and cooling.



(continued)

Temperature Differential and Circulation Control (continued)

Usage Details (Circulation Control)

Always Circulate: Circulation is on at all times. Optimally, use this setting only when your equipment requires it.

High: The system uses circulation to keep all room temperatures as close as possible to one another.

Medium (default): The system uses circulation but allows the temperature differential between rooms to be further apart.

Low: The system uses very little circulation to even out the temperature differentials in the home. Use this setting if you want the fan to run only when the system is actively conditioning. This reduces the time the fan blows but will potentially use the most energy. It is always cheaper to run the fan alone to even out temperatures than to run the furnace or air conditioner.

Never Circulate: Circulation is off at all times. This setting has a significant impact on the system's ability to manage temperatures.

Usage Scenarios

Circulation Control: In winter, you may want to decrease the amount of air blowing through the vent. In addition, in non-extreme seasons (such as fall or spring) or climates, you can increase cost savings by increasing circulation. In mild climate conditions, the house most likely needs minimal warming or cooling; circulation effectively uses the air already in the house to maintain temperatures.

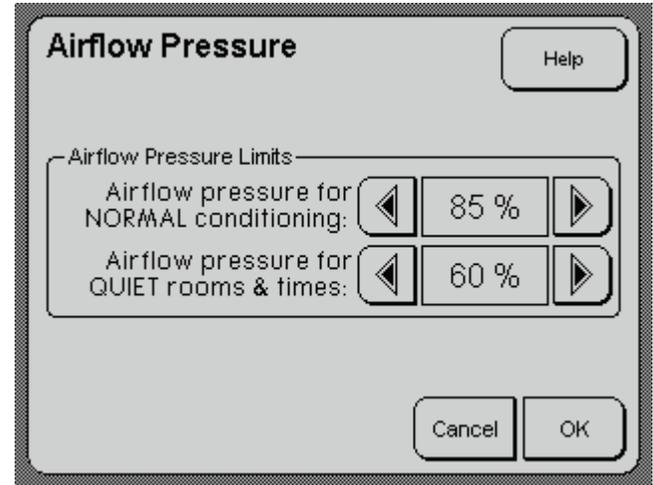
In addition, if you have a source of cool air (like a basement) or a source of hot air (like a home office with electronics) then allowing high circulation helps you reduce energy costs because the system has wide latitude to direct cool air to the warmest rooms and warm air to the coolest rooms. This means that if you have a 65°F basement and an 80°F second-story bonus room, the system attempts to even out their temperatures with circulation rather than active conditioning.

Temperature Differential: The standard six-degree differential is considered the optimal balance between comfort and energy efficiency. At this differential, the system uses circulation as often as possible to help balance temperatures. For the most savings, you may increase the differential a few degrees. However, if you find that you require a tighter comfort range, decrease the differential to a minimum of three degrees.

Airflow Pressure (System > HVAC System Controls >)

Airflow Pressure allows you to set the amount of air pressure for the whole house as a percentage of the maximum airflow. The system uses the **Normal** pressure setting unless you've set a room to **Quiet** mode. See the usage details section on the next page for information about **Quiet** mode.

For energy efficiency, use the **Normal** setting as often as possible and as close to 100% as possible.



(continued)

Airflow Pressure (continued)

Usage Details

Quiet mode is one of the many factors that changes how many rooms are conditioned at any one time. The system controls the overall pressure by inflating and deflating dampers. (See page 56 for a system diagram and overview.) In **Normal** mode, the system inflates as many dampers as possible given the current status of you equipment, parameter settings, and inside temperatures. This means their vents are closed and fewer rooms are conditioned. At 100%, the system uses the minimum number of rooms safely possible to control temperatures.

Quiet mode causes the system to inflate fewer dampers than it would otherwise, which means more vents are open and airflow spreads over a wider area causing airflow noise to decrease—but also more rooms to be conditioned. Airflow noise can be caused by the ductwork’s size and material composition, as well as the grill type.

Note: By reducing the **Normal** pressure setting or by setting a room to **Quiet**, you reduce energy efficiency because the system is forced to include more rooms in any one conditioning cycle even if they don’t require conditioning. You also impact the amount of potential airflow into a room which may not allow difficult rooms (that is, rooms located far from the furnace or rooms with inadequate ductwork) to receive adequate conditioning.

Usage Scenarios

Lower the **Normal Airflow Pressure** if you notice excess airflow noise or breeziness in the house in general. Adjust **Quiet Airflow Pressure** if the noise or breeziness in a room set to **Quiet** mode is still too noticeable.

As described in the usage details section, the lower the normal airflow pressure, the more vents open throughout the house, which can cause rooms that previously received little or no conditioning to seem noisier or breezier than usual. Normally, this does not decrease comfort, but you can set sensitive rooms (such as nurseries) to **Quiet** mode as described on page 46. Always set as few rooms as absolutely needed to **Quiet** mode.

If you are not sensitive to airflow noise or breeziness, you can increase the normal airflow pressure to increase energy efficiency. In addition, increase the pressure toward 100% if you only want to condition a few rooms. For example, you may have rooms that are always included in heating cycles because they lose heat quickly (many windows). By increasing the normal airflow temperature to 100%, the system essentially focuses heat into one or two rooms, for example, rather than into three or four.

View Plenum Conditions (System > HVAC System Controls >)

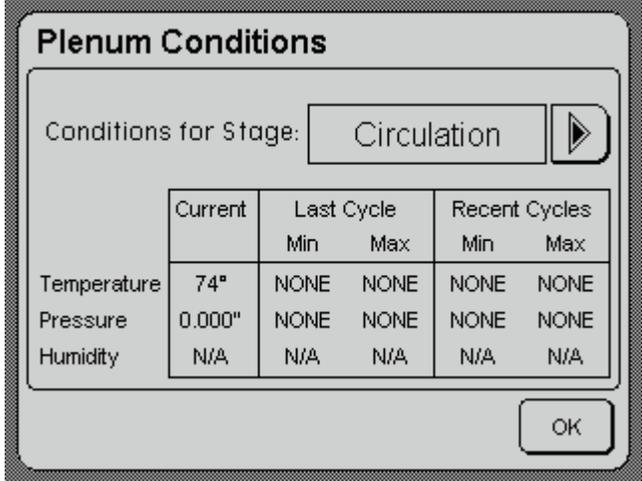
The **Plenum Conditions** screen allows you to monitor the status of your heating, ventilation, and air-conditioning (HVAC) equipment. It displays the current temperature and pressure inside the ductwork near your furnace (or air handler in the case of a heat pump installation). The temperature is recorded in °F.

This screen shows you how your system continually monitors plenum conditions to ensure that your equipment remains protected against extreme conditions. It uses these measurements to calculate how many dampers it can safely inflate to regulate temperatures.

Usage Details

Press the arrow next to **Conditions for Stage** to cycle through **Circulation**, **Heating**, and **Air Conditioning** to view the current temperature as well as the temperatures recorded at the end of the previous cycle and in all cycles run over the previous day. **None** displays when there has been no usage in the past 24 hours. The pressure readings are relative measurements and are currently for internal use only.

A **Switch Plenum** button (not shown) appears on the bottom of the screen when you have twinned HVAC systems. Use this button to view the temperatures recorded for the secondary HVAC system.



The screenshot shows the 'Plenum Conditions' screen. At the top, it says 'Conditions for Stage: Circulation' with a right-pointing arrow button. Below this is a table with the following data:

	Current	Last Cycle		Recent Cycles	
		Min	Max	Min	Max
Temperature	74°	NONE	NONE	NONE	NONE
Pressure	0.000"	NONE	NONE	NONE	NONE
Humidity	N/A	N/A	N/A	N/A	N/A

An 'OK' button is located at the bottom right of the screen.

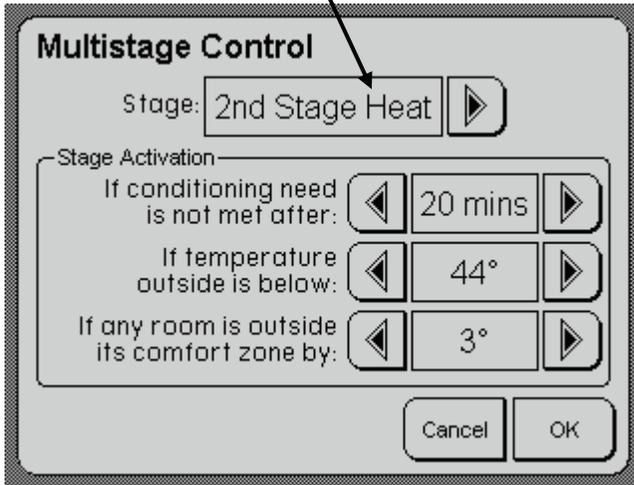
Usage Scenarios

As an example, the **Activity** may state **Heating** but no heat is actually circulating. By checking this screen you can check whether or not the furnace is working. In addition, access this page when speaking with customer service representatives. The data can help diagnose problems.

Multistage Control

(System > HVAC System Controls >)

Press here to choose between auxiliary heat, 2nd stage heat, or 2nd stage cool, depending on your HVAC system.



Note: This button does not appear on the **HVAC System Controls** screen if you don't have multistage equipment.

Use this screen to define when to turn on any staged conditioning equipment you may have. This can include:

- An auxiliary heat source—typically electric strip heating in conjunction with a heat pump—that is also referred to as *backup* or *emergency* heat. In extreme cold, the heat pump loses efficiency and effectiveness, and the auxiliary heat source comes into action.
- A 2nd-stage heat source that some furnaces use when the single-stage isn't adequate to heat the house.
- A 2nd-stage cooling source that some air conditioners use when the single-stage isn't adequate to cool the house.

The screen at left shows the values set for second-stage heat. Press the arrows to redefine when to use this heat source. If any of the three conditions are met, the second-stage heat source starts.

In general, the sooner you set your staged equipment to start, the higher your energy usage.

Usage Details

If conditioning need is not met after: Set the amount of time the 1st-stage equipment runs before you switch to the auxiliary or 2nd stage. If the 1st-stage does not meet the heating or cooling limit within the allotted time, the auxiliary or 2nd-stage activates. For auxiliary heat, consider setting this to at least 60 minutes because it is typically more expensive to operate than your heat pump.

If temperature outside is below: Use 1st-stage equipment until the outside temperature falls (or rises for 2nd-stage cool) to the temperature you specify. For auxiliary heat, for example, most heat pumps lose efficiency below about 30°F. Depending on your comfort-versus-savings priorities, you can set this selection from 40°F for comfort to as low as 30°F for cost savings.

If any room is outside its comfort zone by: Ensure that your home never falls below (or rises above for 2nd stage cool) a given comfort range. For auxiliary heat, for example, suppose your upper limit is 72°F and you set this differential to greater than 10°F. Next, suppose that the house has been in **Away** mode and therefore cooled down to 60°F. When you press **Home** on the main display, the system sees that you have a 12-degree differential to make up and will use auxiliary heat to quickly bring the house back up to 72°F .

Usage Scenarios

Typically, the HVAC starts automatically, but this screen allows you to define how little you want to wait for auxiliary heat, 2nd-stage heat, or 2nd-stage cool to help bring temperatures into their comfort range.

For auxiliary heat, settings are dependant on the type of auxiliary heat you have. If you have a high efficiency gas furnace as your backup heating source, then you can be more aggressive with your settings. You may want to use the following:

Active auxiliary heat after: 30 min

Activate aux. heat if the outside temp. is below: 40°F

Activate aux. heat if temp. differential is greater than: 5°F

On the other hand, if you use electric resistance or strip heating as your backup, you may want conservative settings to save money:

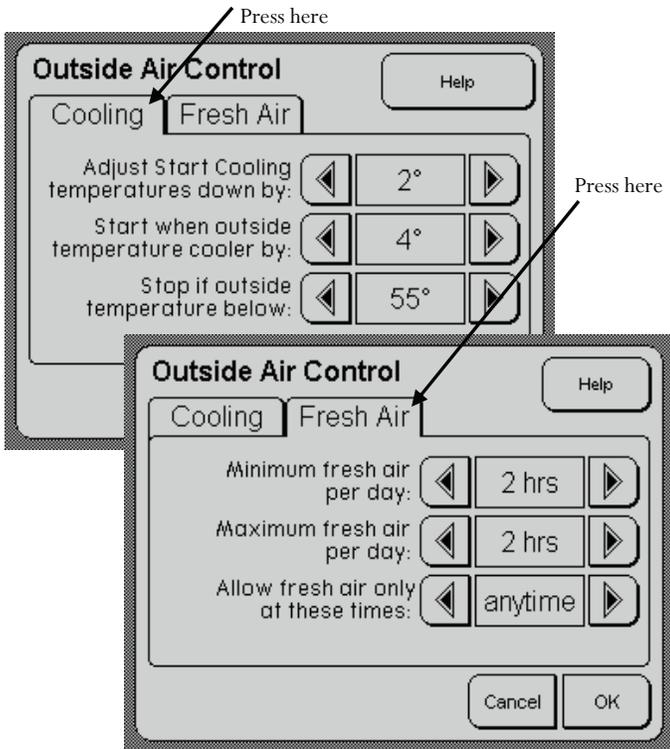
Active auxiliary heat after: 120 min

Activate aux. heat if the outside temp. is below: 30°F

Activate aux. heat if temp. differential is greater than: 10°F

Outside Air Control

(System > HVAC System Controls >)



Note: This button does not appear on the **HVAC System Controls** screen if you don't have outside air equipment.

This screen contains one or two tabs depending on your configured equipment. Press on the tab's label to adjust your outside air controls.

Cooling: Use this tab to define when to turn on and turn off your outside air economizer. Outside air economizers cost effectively lower indoor temperatures by swapping indoor air with cooler outside air — generally at night or early morning when temperatures are at their coolest.

Fresh Air: Use this tab to adjust how many hours within a 24-hour period you would like the system to circulate in fresh air during conditioning cycles to refresh inside air.

Usage Details

Cooling: Use the arrows to adjust the settings.

- **Adjust Start Cooling temperatures down by:** Starts an economizer cycle when inside temperatures are above the **Start Cooling** temperature *minus* the specified value.
- **Start when outside temperature cooler by:** Starts the

economizer when the outside temperature falls below room temperatures by the specified amount. This tells the system how long to wait before starting the economizer. The system starts the economizer when enough rooms meet this criteria.

- **Stop if outside temperature below:** Turns off the economizer if the outside temperature drops below the specified temperature.

Fresh Air: Use the arrows to adjust the settings.

- **Minimum fresh air per day:** Specifies the minimum number of hours the system opens the fresh-air vent in a day. The system starts a conditioning cycle just to bring in fresh air if the minimum wasn't met during regular conditioning cycles.
- **Maximum fresh air per day:** Specifies the maximum number of hours to allow fresh-air circulation during normal conditioning cycles. The system opens the fresh-air vent when cycles are already being run and never starts a conditioning cycle simply to reach the maximum limit.
- **Allow fresh air only at these times:** Specifies when to allow fresh air into the house. Your choices are **Anytime**, **Day**, and **Night**.

Usage Scenarios

Cooling: Typically, the economizer kicks in automatically, but this screen allows you adjust how much or how little you want to use cooler outside air in addition to the air conditioner.

- **Adjust Start Cooling temperatures down by:** This setting controls how much the system continues to use the economizer into the evening and early morning. The higher the value, the cooler your house becomes while you sleep. This in turn reduces air-conditioning requirements the next day as temperatures rise. Specify a smaller value if you prefer to use the air conditioner more often to maintain even temperatures throughout the day.
- **Start when outside temperature cooler by:** The higher the value you specify, the cooler the outside air is when the economizer starts and the more quickly the system cools room temperatures. This might mean that the economizer won't start a cycle until late evening or early morning. A lower value specified for this option causes the economizer to start sooner and run longer to achieve the desired result; however, you may prefer to cycle slightly cooled fresh air rather than use the air conditioner.

Note: A higher value cycles in less air overall, which means less pollen, dust and other particles caught in the air

(continued)

Outside Air Control (continued)

filter and fewer air filter changes.

- **Stop if outside temperature below:** Use this setting to halt cooled outside air from blowing on you and to prevent circulating outside air if there is a risk of condensation.

Fresh Air:

- **Minimum fresh air per day:** Building codes in some states require new homes to be built with fresh-air intake valves that add fresh air to the house for one hour every 12 hours (two every 24 hours). This is considered a minimum recommendation for air freshness in newly constructed homes. However, the actual amount of air required to keep the air feeling fresh varies from home to home and person to person.

If you only want fresh air added to the house during regular conditioning cycles, lower this value to zero.

- **Maximum fresh air per day:** In general, adding fresh air to the house doesn't change your comfort. Therefore, you can raise the maximum hours of fresh air as desired, while considering the following:

In extreme climates, circulating high quantities of fresh air may cause a slight increase in energy usage because the system needs to

condition the fresh air to within your comfort range. Springtime allergens may require you to minimize fresh-air intake. Less fresh-air intake results in fewer air filter changes.

- **Allow fresh air only at these times:** During winter in a colder climate you may choose **Day** to prevent colder air from entering the house at night. In summer in a warmer climate, you might choose **Night** for effective use of cooler air temperatures.

Smart Controller Properties

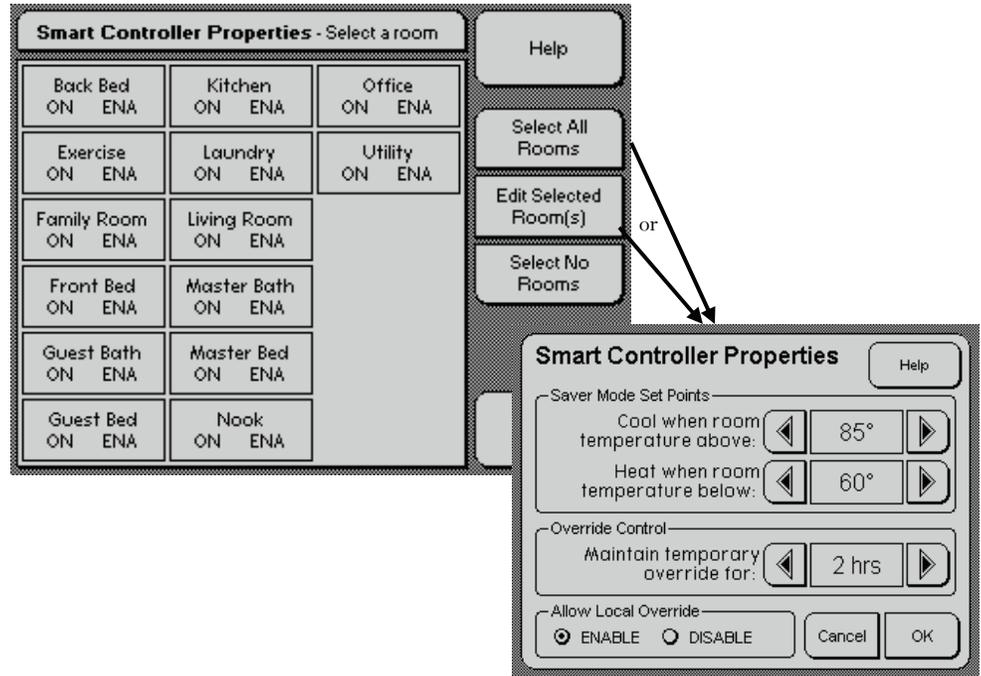
(System > Smart Controller Properties >)

This screen lists every room in the house that contains a Smart Controller. The display shows the name of the room, whether the Smart Controller is in **On** or **Saver** mode, and whether it is enabled or disabled.

Press a room or group of rooms, then press **Edit Selected Room(s)** to change Smart Controller settings for those rooms. You can also press **Select All Rooms** to change the Smart Controller parameters for the entire house.

The **Select No Rooms** button deselects the current highlighted rooms.

Refer to the *Smart Controller User Manual* for details about how to use your Smart Controllers.



(continued)

Smart Controller Properties (continued)

Usage Details

Enable/Disable: Disable the selected Smart Controller(s) and re-enable them, as desired. Disabled Smart Controllers report temperature information, but you can't use the buttons.

Saver Setting: Define the upper and lower limits to use when you place a Smart Controller in **Saver** mode. These limits should correspond to a relaxed conditioning state to increase energy savings. Take care not to set the temperatures too high or too low as this may increase the time it takes the system to get a room into its comfort range. Also note that there is a limit to the temperature differential you can achieve between adjacent rooms. In a typical home it is difficult to achieve more than an 8-12°F differential between adjacent rooms.

Duration of Changes: When you press the arrows on a Smart Controller, the system temporarily adjusts the temperature in the room to the new setting. Use the **Duration of Changes** arrows to define how long you want temporary temperature settings to last. The default is two hours. You can also choose to set the duration to last until a certain time of day. The arrows cycle through the following duration choices: 1 hr, 2 hr, 3 hr, 4 hr, 6 hr, 8 hr, 12 hr, 2:00 a.m., 6:00 a.m., 10:00 a.m., 2:00 p.m., 6:00 p.m., 10:00 p.m.

Usage Scenarios

Enable/Disable: The disable setting is often used in homes with children so they don't accidentally change the Smart Controller settings.

Saver Setting: For energy savings, adjust these values for rooms that you often set to **Saver** mode from the Smart Controller, which are the rooms most often unoccupied (guest rooms, for example). Refer to the *Smart Controller User Manual* for more information about the **Saver** mode.

Note: Use caution when setting the **Saver** mode for rooms in which extreme heat or cool may harm artwork, pets, or plants.

Duration of Changes: As described in the *Smart Controller User Manual*, you most often temporarily change temperatures in rooms with sporadic usage schedules. The duration of these changes reflect how long you generally use these rooms and therefore how long you would like the temporary settings to last. As an example, you may want to increase the duration of change for the Smart Controller in a guest room when it's in use; this way any temporary changes your guest makes will last longer than the default two hours.

Advanced Room Controls (System > Advanced Room Controls >)

In general, you use the controls on this screen to adjust rooms that are habitually hot or cold, fix inherent problems in the house, and overcome problems with the ductwork capacity.

For each room with a Smart Controller, the screen shows whether the room has airflow in **Normal** or **Quiet** mode, and whether the room is **Anticipation**-enabled. The display also indicates the level of circulation set for that room: high (**H**), medium (**M**), and low (**L**).

Advanced Room Controls - Select a room		
Back Bed NORM ANT H	Kitchen NORM ANT H	Office NORM ANT H
Exercise NORM ANT H	Laundry NORM ANT H	Utility NORM ANT H
Family Room NORM ANT H	Living Room NORM ANT H	
Front Bed NORM ANT H	Master Bath NORM ANT H	
Guest Bath NORM ANT H	Master Bed NORM ANT H	
Guest Bed NORM ANT H	Nook NORM ANT H	

Help

Select All Rooms

Edit Selected Room(s)

Select No Rooms

Rename

OK

Select a room, press **Rename** and then use the keyboard to personalize room names as desired.

Press a room or group of rooms, then press the **Edit Selected Room(s)** to adjust advanced room parameters. You can also press **Select All Rooms** to adjust the entire house. The **Select No Rooms** button allows you to deselect all highlighted rooms.

Advanced Room Controls

Help

Airflow

Normal Quiet

Room Priority

High
 Normal
 Low

Anticipation

Enabled Disabled

Circulation

High
 Medium
 Low

Extra Heat

Less
 Normal
 More
 In Range

Extra Cool

Less
 Normal
 More
 In Range

Cancel

OK

(continued)

Advanced Room Controls (continued)

Usage Details

Airflow: The **Normal** setting allows the system to deliver as much airflow as possible into a room. If you set a room to **Quiet** mode, the system opens more ducts to reduce air pressure and, thus, air noise.

Note: The trade-off for **Quiet** mode is that the system may take longer to bring a given room to temperature. In extreme climate conditions the system may not achieve the desired temperature at all. In addition, you should set as few rooms as absolutely needed to **Quiet** mode.

Anticipation: Suppose you set the lower limit to 68°F at 7:00 a.m. By default, **Anticipation** is enabled, which means that the system calculates when to start heating in order to ensure the room reaches 68°F by 7:00 a.m. As the name implies, the **Anticipation** parameter allows the system to anticipate your temperature limits. The system may start at different times each day due to outside temperature factors and the current inside temperature.

Anticipation Disabled, on the other hand, causes the system to begin conditioning a room at the start time indicated by your comfort schedule. Disable anticipation if, for example, conditioning noise wakes you up too early.

If you have a heat pump or multistage HVAC equipment,

Anticipation overrides the **Activate aux. heat if temp. differential is greater than** setting. That is, auxiliary heat turns on only if the temperature differential is greater than that specified at the time conditioning *would have* started if **Anticipation** were *not* enabled.

Extra Heat and Extra Cool: These parameters define the degree to which the system allows extra warm and extra cool air to enter a room during a conditioning cycle. Remember that because of airflow requirements, the system conditions multiple rooms during a conditioning cycle (that is, these rooms are receiving *extra* conditioning) even if only one room actually requires conditioning. The choices are:

- **Less:** Allows less-than-normal warm or cool air into this room, which means that this room only receives extra air when it is already very close to its heat or cool limit. (In general, the system tends to want to allow extra air into rooms that are already near their upper or lower limits.)
- **Normal** (default setting): Allows extra warm or cool air into this room as needed. This is the default setting, and as much as possible for system efficiency, leave rooms in this setting.
- **More:** Allows more-than-normal extra warm or cool air into this room.
- **In Range:** Allows as much extra warm or cool air into this room as necessary. This is the most flexible setting, and we recommend

that if there's one or more rooms in the house that you can use as a catchall for excess air for the sake of rooms that are more important to you, then set this room to **In Range** for both **Extra Heat** and **Extra Cool**.

Room Priority: This option allows the system to temporarily dedicate conditioning to rooms that you consider most important. This causes these rooms to reach their optimal temperature faster. When priority conditioning is in effect, the system temporarily focuses conditioning on high-priority rooms by diverting airflow from low-priority rooms. Once the higher priority rooms receive sufficient conditioning, the system returns to conditioning all rooms that need it.

Priority conditioning only occurs when house temperatures are significantly outside your comfort range. That is, priority settings go into effect in two situations, as follows:

- When you are recovering from a setback. (Refer to the glossary for a definition.)
- On those rare occasions when extreme temperature conditions fall outside your HVAC's optimal performance range.

Note: Setting all rooms to the same priority disables priority conditioning. Setting a few rooms to **High** and a few rooms to **Low** is recommended so that the system knows how to prioritize if needed.

Circulation: For the specified room(s), choose one of the following:

- **High** (the default): The temperature of a room set to **High** tends to stay near the same temperature. This is the most cost efficient setting. The system uses circulation before active conditioning when these rooms near their limits. The air in these rooms is used to balance temperatures in other rooms.
- **Medium:** The air in these rooms is used to balance temperatures in other rooms.
- **Low:** The room rarely, if ever, participates in circulation. A room set to **Low** experiences the greatest temperature variation.

Usage Scenarios

Airflow: This setting is most often used to change sensitive rooms from normal airflow pressure to quiet airflow pressure. Sensitive rooms are those whose occupants prefer as little airflow noise (or breeze) as possible.

Note: Quieting a few rooms often results in less airflow noise, but less control, within the house in general because more ducts are open at any given time.

(continued)

Advanced Room Controls (continued)

Anticipation: Disable anticipation, for example, if the furnace or air conditioner is close to your bedroom and turning it on too early wakes you up.

Extra Heat and **Extra Cool:** You most often adjust this setting higher than **Normal** (the default) for rooms that you determine the system can use to store extra heated and extra cooled air. In general, these are rooms such as utility rooms whose temperatures can fluctuate without discomfort to you.

“Storage” rooms for extra heated and extra cooled air can be important if you have other rooms that habitually draw high quantities of conditioning. For example, suppose you have a western-facing room that requires near-constant air conditioning during the summer. Unfortunately, if there are no other rooms in the house that require air-conditioning, the system won’t start a cycle just for that room alone. Remember that because of airflow requirements, the system requires multiple rooms for a cycle. Therefore, if you have a room that’s a designated storage room for extra cooling, the system can initiate the cycle.

This usage scenario also applies to a room that require near-constant heating in the winter. Set a little-used room to **More** for **Extra Heat** so that the system can initiate heating cycles more often.

Room Priority: Suppose in summer you let your house temperatures rise while you’re at work. **Room Priority** allows you to then focus air conditioning on those rooms you’d liked cooled most quickly when you get home. Likewise, in winter, you may allow house temperatures to drop during the day and then use **Room Priority** to heat the most important rooms first.

During extreme temperature conditions, your HVAC equipment may struggle to keep all the rooms in the house at a comfortable temperature. In this case, for example, in the summer you can focus air conditioning into the master bedroom so you can sleep. In winter, you can focus heat into the master bedroom for the same reason.

Circulation: For rooms such as the bathroom or home office (in which papers blow off the desk) you may want as little circulation as possible so adjust those rooms to **Low**.

Programming Your Comfort Schedules

Note: This is an advanced feature. Use it only if you understand how the three thermostat modes function.

One of the most powerful features of your MyTemp system is the ability to save your comfort schedules to specific programs. A program is a saved comfort schedule that contains all necessary information about zones and parameter settings. You can use programs for many purposes: seasonal schedules, party schedules, school schedules versus vacation schedules, swing shift versus dayshift schedules. Any circumstance that changes room usage and temperature needs is fair game for its own program.

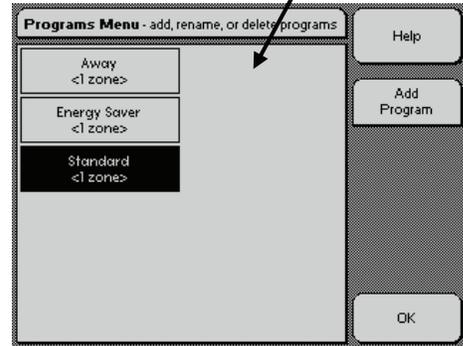
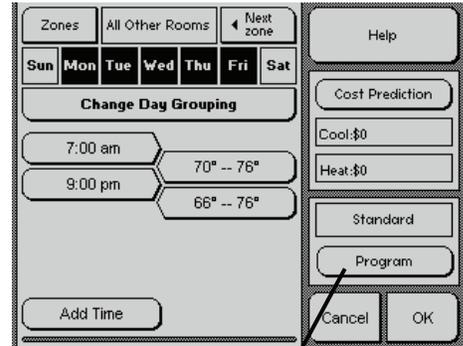
Using programs also saves you time because when you need to adjust your home environment, you simply select the applicable program rather than adjusting all the comfort ranges for different rooms on different days at a different times.

Standard, Away, and Energy Saver Programs

On the home screen, press **Thermostat**, then **Program** to view the **Programs Menu** screen. On this screen, you see that the system comes with three programs, **Standard**, **Away**, and **Energy Saver**. **Standard** is for daily use and **Away** for extended absences from the house. You cannot rename or delete these programs, but you can adjust their settings as described in section “Adjust Program Settings” on the next page.

You can rename, delete, and adjust the **Energy Saver** program. This program is recommended by the U.S. Department of Energy for energy conservation.

If you are in **Programmable** or **Programmable Zones** mode, you see the **Program**



(continued)

Programming Your Comfort Schedules (continued)

button on the right. Programs don't apply to the **Basic** thermostat mode because it sets one comfort zone for the entire house.

To use the **Away** schedule, press **Away** on the home screen. Pressing the **Home** button reapplies the last program used.

1. Create a New Program

To create a new program, press **Add Program**, which copies the active program currently highlighted on the **Programs Menu** screen. Consider this copy your starting point for creating a new program. Rename this program by pressing the back button to delete the words **New Program** that appear on the keyboard screen. Press **OK** when you are done.

At any time, you can rename or delete a program by pressing **Rename Program** or **Delete Program**.

2. Adjust Program Settings

Adjust your programs from the **Thermostat** screen (described starting on page 19; remember that the screen you see depends on your

thermostat mode). When you change a comfort schedule, you are actually editing the copied program. That is, you are creating a variation of the program you used as a starting point. When you leave the **Thermostat** screen by pressing **OK**, the system saves all changes.

3. Change Programs

Anytime you want to switch programs, press **Program** on the **Programmable** or **Programmable Zones** thermostat screen, highlight the applicable program, and press **OK**. This is now your active program.

Viewing Your Energy Consumption

Press **Energy History** on the home screen to view the **Status** screen. This screen allows you to access the previous 24-hour history of your home.

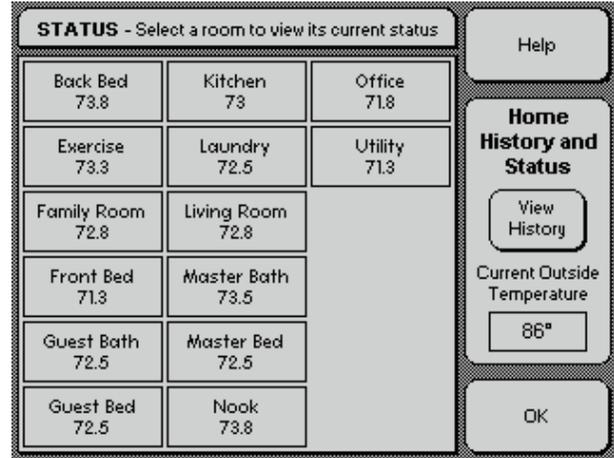
The screen lists the rooms that contain Smart Controllers, their current temperatures, and current conditioning cycle, if any. A line in place of a temperature indicates that the Smart Controller is not communicating with the system. If this persists, contact customer support.

Press on a room to view its 24-hour energy history. The figure on the next page shows the history for the master bath. The thick gray lines are your upper and lower limits for the room at different times of the day. The thin dark line is the actual temperature over the previous 24 hours.

The individual room plots can tell you a tremendous amount of information about your home. If you are concerned about saving energy, you can use these plots to discover which rooms are causing conditioning cycles. In this example, the master bath caused a heating cycle starting at about 6 p.m. when its temperature reached the lower limit (anticipation is disabled). The lower limit is 68°F at 6:00 p.m. You could choose to relax this limit to save energy.

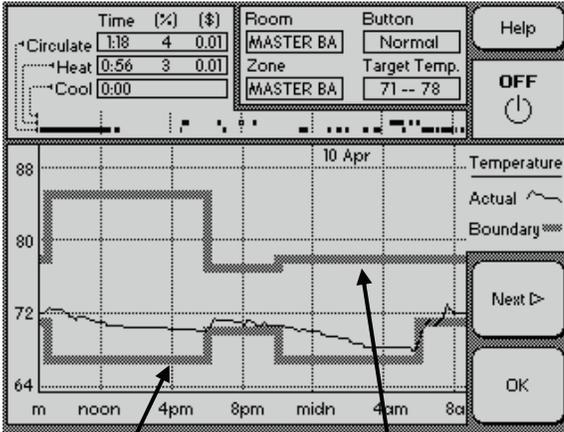
In the upper left corner you can see how much circulation, heating, and cooling took place over the last 24 hours. You can also see what percentage of the entire energy spent in the house was used in this room.

The display for the whole house is a special collection of information that



(continued)

Viewing Your Energy Consumption (continued)



Lower limit

Upper limit

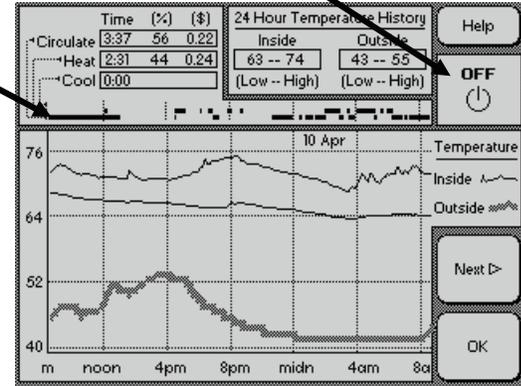
includes the high and low temperatures inside the house plotted against the outside temperature. It also displays the amount of circulation, heating, and cooling that took place in the previous 24 hours.

Press **View History** on the Status screen to view the energy history for the entire house. The figure below demonstrates the graph for the whole house.

The thick grey line plots the outside temperature while the thin lines are the low and high inside temperatures throughout the home. The dashes above the plot indicate conditioning cycles. In this case, the system air-conditioned and circulated air but did not heat. The length of the dash approximates the amount of time the cycle lasted.

Conditioning cycles over the last 24 hours

Current cycle



Calculating Your Cost Savings

On the home screen, press **Thermostat** then **Cost Prediction** to view the **Cost Predictions** screen, which allows you to enter your basic energy expenditures and select how you want to calculate energy costs.

When you make changes to temperature schedules, the system predicts how much the new settings will cost. This prediction is based on a yearly cost and assumptions about your initial energy costs. The system includes average weather information built into the predictive model for your climate.

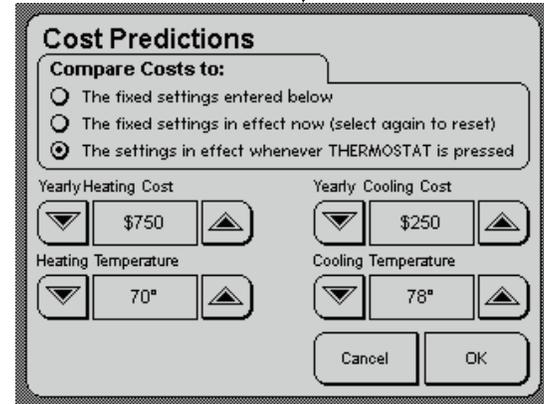
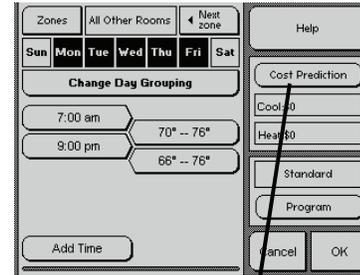
Pick one of the following options in the **Compare Costs to** area:

The fixed settings entered below: Compares based on the temperatures you set on this screen. In the example above, all heating changes are compared to 70°F and all air-conditioning changes to 78°F.

The settings in effect whenever thermostat is pressed:

Compares current settings to the previous settings. This is a dynamic calculation that allows you to see how your current changes impact costs relative to your previous settings.

The fixed settings in effect now: Freezes all settings and compares all future changes relative to you current settings.

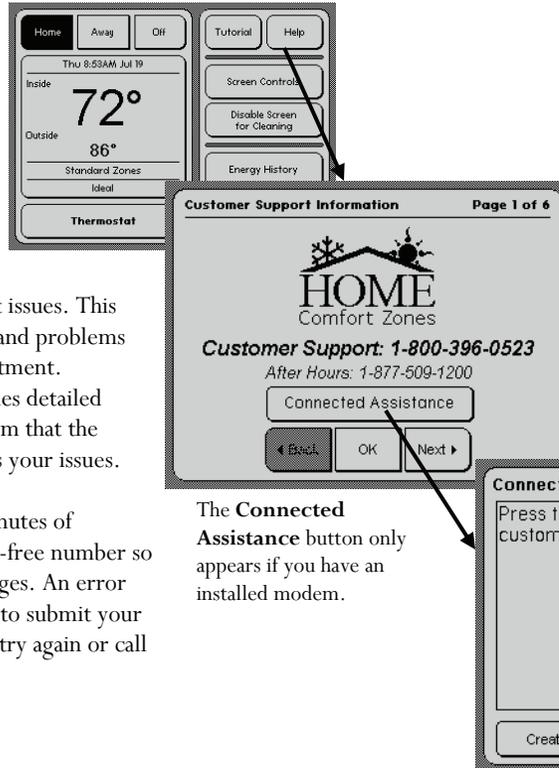


Connected Assistance

Note: For urgent issues, always call the Home Comfort Zones support hotline at 1-877-509-1200.

If you have a connected Home Comfort Zones modem, which is installed at Home Comfort Zone's discretion to help us monitor our equipment, you can access the Home Comfort Zones Connected Assistance service for customer support issues. This service allows you to submit questions and problems directly to our customer support department. Submitting a request via modem provides detailed diagnostic information about your system that the support staff can analyze to best address your issues.

A modem request can take up to 20 minutes of telephone time. The modem calls a toll-free number so you should not incur long distance charges. An error message appears if the system is unable to submit your support request, in which case you can try again or call the hotline.



The **Connected Assistance** button only appears if you have an installed modem.

To use **Connected Assistance**, do the following:

1. Click on the **Connected Assistance** button as shown at left and then click **Create** to start the process.

Note: On the screens that follow, click **Submit Now** at any time to submit your request.

Connected Assistance Page 1 of 4

Introduction

Connected Assistance allows your system to automatically connect with the Home Comfort Zones Office and submit a support request containing detailed operational data. A Home Comfort Zones representative will then contact you using the method and time you specify.

If you are having a critical problem please call Home Comfort Zones immediately at the customer support number below.

Customer Support: 1-800-396-0523

<< Back Cancel Next >> Submit Now

2. Click **Next** if you would like to include additional information with your request.

Connected Assistance Page 2 of 4

Please indicate why you need customer support:

- Will discuss problem when HCZ contacts me.
- No heat, cooling, or circulation when expected.
- Too much heat, cooling, or circulation.
- Certain room(s) not receiving expected conditioning.

What is the priority for this support request:

- Information Request (Low priority)
- System needs adjustment. (Medium priority)
- Significant problem (High priority)
- System is not functioning (Urgent priority).

<< Back Cancel Next >> Submit Now

3. Press the buttons next to your responses and press **Next** or **Submit Now**.

Connected Assistance Page 3 of 4

Please enter your contact information in the spaces below.

Name:

Phone:

Contact me by telephone.

Email:

Contact me by email.

<< Back Cancel Next >> Submit Now

4. If you press **Next**, you can enter your contact information in the next screen. The name, telephone number and email address is for Home Comfort Zone convenience only; they are not mandatory, but they will assist HCZ in contacting you for follow-up support. When done, click **Next** or **Submit Now**.

Note: When this screen first appears, all the text boxes display **Edit**. Click on **Edit** to access the typewriter screen upon which you can enter your information.

Connected Assistance Page 4 of 4

After creating your request, the system automatically uses your phone line to send the request to customer support. Please note that your phone will be unavailable for about five minutes.

Would you like to delay your call?

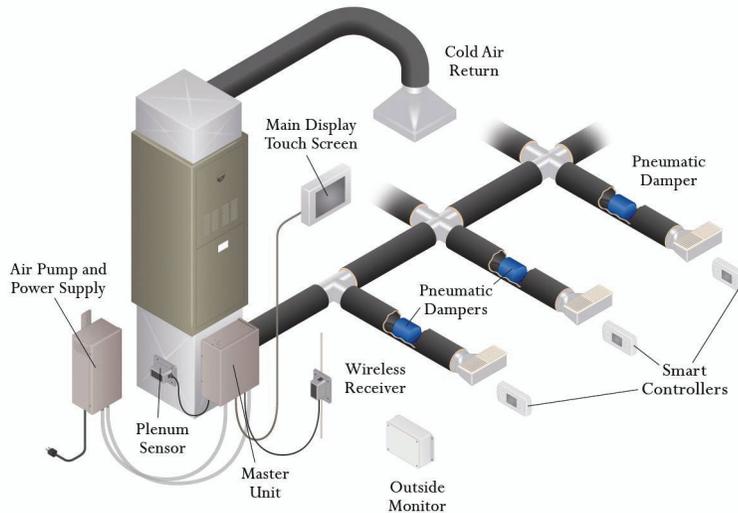
- Make the call one hour from now.
- Make the call tonight, after midnight.

Press the **Submit Now** button to complete your request. Home Comfort Zones will contact you within one business day of receipt.

<< Back Cancel Submit Now

5. The last screen allows you to defer the request for a period of time when the modem can use the phone line without causing you inconvenience.

System Diagram



At the heart of your Home Comfort Zones system lies a sophisticated computer that is housed inside the **master unit** that is generally mounted near or onto the plenum of your air handler. The computer program constantly monitors your home and your equipment and intelligently directs conditioning based on the current needs of each room.

The master unit is attached to the various components of the system so it can “talk” to them and coordinate activities. You see this when you use the **main display touch screen** to adjust parameters and temperature schedules. Your changes are saved in the computer and it adjusts conditioning usage as needed.

Air tubes (not shown) run from the master unit through the ducts to the **pneumatic dampers**, which deflate and inflate upon command from the computer, thus allowing conditioned air to enter some rooms and not others.

Each **Smart Controller** transmits temperature readings to the **wireless receiver**, which sends those readings to the master unit. The computer uses these readings, along with other information, to control which rooms to condition.

Unlike the Smart Controllers, the main display does not contain a temperature sensor. The inside temperature it displays is that shown on a Smart Controller chosen by the installer. Call the Home Comfort Zones support center if you would like to change the Smart Controller used to represent the inside temperature of your house.

The **outside monitor** also contains a temperature sensor that sends readings through the wireless receiver to the master unit. The computer program factors in outside temperature readings in its conditioning decisions (page 31).

At the start of each conditioning cycle, the computer signals the **air pump** to apply pressure and vacuum to the system. This causes the dampers to inflate or deflate and conditioned air to flow.

Your equipment requires adequate airflow to operate correctly. The computer uses information from the **plenum sensor** (temperature and pressure) to ensure enough dampers are deflated so there is always sufficient airflow. The number of deflated dampers—therefore, rooms receiving conditioning—can vary depending on the plenum readings and current inside temperatures. Airflow pressure **Normal** and **Quiet** mode settings can also affect the number of open dampers.

Special Case: Homes With Two Air Handlers

If you have two air handlers, you also have two main displays. Each main display lists *all* the rooms in the house on the **Advanced Room Controls**, **Smart Controller Properties**, and energy history **Status** screens if you chose to connect the air handlers.

On the energy history **Status** screen, you might notice, for example, some rooms cooling at the same time other rooms are circulating, depending on which air handler conditions which rooms.

Multistage parameters such as second-stage heat and auxiliary heat apply to both air handlers.

You can create programs and zones from either main display for any room in the house without worry. The computer knows which rooms are attached to which air handler and manages conditioning accordingly.

When you are in the process of adjusting parameters from one of the main displays, the other main display locks to prevent anyone else from making changes at the same time. A message displays to indicate that the main display is temporarily locked.

Frequently Asked Questions

How do I set the temperature in my house?

On the thermostat screen, press the up and down arrows to increase or decrease the comfort zone setting for the house, time, or room. The system cools when any room is above the upper limit: **Start Cooling At**. The system heats when any room is below the lower limit: **Start Heating At**. How you access the thermostat screen depends on which thermostat mode you are using. See page 19 for details.

Why do I have two temperatures I need to set? My old thermostat only had one temperature.

The upper and lower limits define a comfort range. The system attempts to keep the temperature of each room within that range and uses heating or cooling whenever the temperature strays outside those limits. See page 8 for details.

Why does my lower limit change when I adjust my upper limit? And vice versa?

To ensure the system does not constantly switch between heating and cooling, the upper and lower limits must be at least three degrees apart. The system automatically adjusts the limits when you set them too closely. By default, the system enforces a six-degree separation.

Note: We recommend at least a six-degree separation, which allows adequate comfort while avoiding unwanted conditioning cycles. See page 33 for details.

How do I adjust the minimum separation between the upper and lower limits?

From the home screen, press:

System > Furnace and A/C Settings > Temperature Differential and Circulation Control.

See page 33 for details.

Most of the vents blow too hard at different times. How can I reduce the airflow?

The normal airflow pressure setting controls the overall airflow. On the **Airflow Pressure** screen (page 35), lower this setting to reduce the normal airflow, which increases the minimum number of vents that always open, so the airflow to each vent lessens. This also reduces the ability of the system to control temperatures in some rooms. Increase the percentage for better control and more airflow to each vent.

Frequently Asked Questions

I'm only concerned about too much airflow in one or two rooms. How can I reduce the airflow to just those rooms at all times?

Select the rooms and set the airflow to quiet using the **Advanced Room Controls** screen (page 45). You may also need to reduce the quiet airflow pressure from the **Airflow Pressure** screen (page 35), which increases the minimum number of vents that open when those rooms receive airflow, therefore decreasing airflow to those vents. This reduces the ability of the system to control temperatures in some rooms. Increase the setting for better control and more airflow to each vent.

In some cases, the duct is not designed or installed properly so using the quiet airflow pressure is not sufficient. It may be necessary to modify the vent or duct. Contact Home Comfort Zones support for possible solutions.

How do I reduce the airflow in my bedrooms zone at night?

You must be using the **Programmable Zones** thermostat mode to reduce the airflow for a specific zone during specific times. When setting the night-time comfort zone for the bedrooms zone, select the

Quiet value for the **Noise Profile** parameter (page 23). This increases the minimum number of vents that open when bedrooms receive airflow, which decreases airflow to those rooms. This also reduces the ability of the system to control temperatures in some rooms. Increase the setting for better control and more airflow to each vent.

I need ample airflow for temperature control, so how do I reduce the noise?

The vent cover probably makes most of the noise. Try removing the cover. If the noise is acceptable, try using a vent cover that has more openings or fewer obstructions. A vent cover designed for return vents makes less noise than a vent cover with a control lever. If changing the vent cover is not enough, contact Home Comfort Zones support for possible solutions.

From the home screen, access the **Airflow Pressure** screen with the following buttons:

System > Furnace and A/C Control > Airflow Pressure

(continued)

Frequently Asked Questions (continued)

How do I adjust the system to use less energy when the house is empty?

On the **Basic** thermostat screen, press the **Away Setting** button and then the arrows to adjust the upper and lower limits. Press **OK** to save your settings and return to the home screen. When you leave the house, simply press **Away** on the home screen to tell the system to use your away settings.

How do I prevent the system from cooling on a mild day or in the winter?

The outside temperature can prevent cooling when a room temperature is above its upper limit. The air conditioner does not run when the outside temperature is below the **Never Cool when Outside Temperature is Below** setting (page 31). Check this setting if the air conditioner does not run when you want cooling.

From the home screen, press the following buttons:

**System > Furnace and A/C Control >
Conditioning with Relation to Outside Temperature**

Alternatively, create a program (page 49). For the heating season, you can program the upper limits very high (such as 90°F) so that room temperatures never call for cooling.

How do I prevent the system from heating on a warm day or in the summer?

The outside temperature can prevent heating when a room temperature is below its lower limit. The heater does not run when the outside temperature is above the **Never Heat when Outside Temperature is Above** setting (page 31). Check this setting if the heater does not run when you want heating.

From the home screen, press the following buttons:

**System > Furnace and A/C Control >
Conditioning with Relation to Outside Temperature**

Alternatively, create a program (page 49). For the cooling season, you can program the lower limits very low (such as 60°F) so the room temperatures never call for heating.

How can I make the system use only circulation when windows are open?

Create a program (page 49) in which all the comfort zones have high upper limits (such as 90°F) and low lower limits (such as 60°F) and the **Circulation** parameter on the **Advanced Room Controls** screen for each room is set to **High** (page 47).

From the home screen, press the following buttons:
System > Advanced Room Controls

Optionally, temporarily change the circulation control parameter to **Always Circulate** (page 34) for the time period the windows are open. Afterwards, remember to return circulation to the default setting (**Medium**). From the home screen, press the following buttons:
System > Furnace and A/C Control > Temperature Differential and Circulation Control

You can also use the **Away** feature if the lower and upper limits prevent heating and cooling. If you normally use one of the programmable thermostat modes, you can switch to the **Basic** thermostat mode when you want circulation only. Set the lower limit to 60°F and the upper limit to 90°F.

How can I temporarily stop heating or cooling in a room?

If you want to quickly stop heating in a room, press the Smart Controller's down button two or three times. If you want to quickly stop cooling in a room, press the Smart Controller's up button two or three times. Airflow should stop within a few minutes. Refer to your *Smart Controller User Manual* for details about Smart Controllers.

How can I temporarily start heating or cooling in a room?

If you want to quickly start heating in a room, press the Smart Controller's up button two or three times. If you want to quickly start cooling in a room, press the Smart Controller's down button two or three times to the desired temperature. Airflow should start within a few minutes. Refer to your *Smart Controller User Manual* for details about Smart Controllers.

How do I adjust the time duration for a Smart Controller's temporary conditioning request?

Change the **Duration of Changes** parameter on the **Smart Controller Properties** screen. See page 43 for details.

How do I adjust the temperature range of a Smart Controller's Saver mode?

On the home screen, press **System**, then **Smart Controller Properties**. See page 43 for details.

(continued)

Frequently Asked Questions (continued)

How do I prevent my child from accidentally changing the temperature of a room with a Smart Controller?

Select **Disable** on the **Smart Controller Properties** screen. See page 43 for details.

What's the difference between the three thermostat modes?

The three thermostat modes differ in their level of complexity and flexibility of temperature control. See page 19 for details.

Why use the Programmable thermostat mode?

This mode allows you to save energy by reducing conditioning during times you don't need tight temperature control. Let's look at an example for a weekday program:

6:00 a.m. (wake)
70°F -- 75°F

8:00 a.m. (leave for work—reduce usage—widen temperature limits)
62°F -- 85°F

5:00 p.m. (arrive from work—tighten temperature limits again)

70°F -- 75°F
11:00 p.m. (go to bed)
62°F -- 74°F

Notice that from 8:00 a.m. to 5:00 p.m. the comfort range widens. That is, the furnace only starts when the temperature falls to 62°F, and the air conditioner, only if the temperature rises to 85°F.

You can program different comfort schedules for the weekends. You can also create schedules for each day of the week, or groups of days like Monday, Wednesday, and Friday.

How many time periods can I set for one day?

You can program up to five time periods for any one day (or group of days). This is due to the screen size. If you would like more than five time periods, please contact us.

Why should I use the Programmable Zones thermostat mode?

There are two major reasons for using zones:

Energy Savings

By grouping rooms into common functions you may be able to reduce energy usage. For example, you can zone all bedrooms

together so that you can reduce heating at night and during the day when they are not used. You might group adult rooms in one zone and children's room in another zone to maximize comfort and energy savings.

Optimal Comfort

There are dozens of circumstances that may warrant special temperature considerations. These can include exercise and guest rooms, home offices, nurseries, walk-in closets, music rooms, home theaters, and so on. You can create a zone for each circumstance.

What is the difference between Programmable (or Programmable Zones) thermostat mode and the Program button?

Programmable and **Programmable Zones** thermostat modes allow you to create comfort schedules for each day of the week. The **Program** button allows you to save these schedules so that you can switch between them easily.

See page 49 for details on how to use programs.

Why use programs?

A program is a convenient way to rapidly change your settings for different circumstances. For example, if you are a shift worker and your schedule changes every few weeks, then creating programs named *Day*, *Swing*, and *Grave* is the fastest way to adjust the temperature schedules in your home.

One of the most common uses for programs are winter and summer schedules. In the winter most people feel too warm if the house reaches 75°F, yet in the summer feel too cool if it *drops* to 75°F! A winter schedule might set the upper and lower limits to 65°F and 75°F, respectively, while a summer schedule might set them to 68°F and 78°F, respectively. This example is typical for a Pacific-Northwest climate. Temperatures for your location may vary.

If you have children, you can create a program for use when the children are on vacation. Typically, they do not rise as early, and they are in their rooms for some period each day.

Glossary

Air Conditioner (A/C)

The air cooling and dehumidifying components of the heating, ventilation, and air-condition (HVAC) equipment, which can be a heat pump or a separate air conditioner.

Call for conditioning

The temperature reported by a Smart Controller is above the upper limit or below the lower limit of the comfort range for that room, so there is a request for conditioning.

Circulation

The HVAC system fan is running without conditioning. Circulated air is only a few degrees warmer or cooler than the air in the room. Circulation is an inexpensive way to balance temperatures between rooms.

Comfort range

A range of temperatures specified by an upper limit and a lower limit.

Comfort schedule

A schedule of comfort ranges for different times and days of the week. Depending on your settings, a comfort schedule is applicable to the house as a whole or to a particular area within the house.

Conditioning

The HVAC system is either heating or cooling the air and there is heated or cooled airflow at several vents.

Damper

An airflow control valve in the duct system. There may be one or more manual (adjusted by hand) dampers in a conventional duct system. There are several varieties of automated dampers used in simple zone systems. The Home Comfort Zones system uses a pneumatic damper at each register to independently control airflow to each room.

Default values

Parameter settings as set by Home Comfort Zones before and during installation. These are the values you see when you first use your system.

Duct

The pipes within walls, floors, and ceilings that carry airflow from the HVAC equipment to the vents.

Fan

The HVAC equipment component that generates airflow. Sometimes this is referred to as a blower.

Furnace

HVAC equipment heating component, which can be a heat pump or a fossil-fuel-based furnace.

HVAC (heating, ventilation, and A/C) equipment

The combination of furnace, air conditioner (or heat pump), and fan.

Lower limit

The lowest temperature for a comfort range. The system calls for heating when the temperature reaches the lower limit.

Parameters

On the touch screen, a number you input or a choice between two or more settings. All parameters are initially set to default values.

Plenum

The portion of the duct system that connects directly to the HVAC equipment. The plenum carries conditioned air to the rest of the duct system. The Home Comfort Zones system provides pressure, temperature, and humidity sensors inside the plenum (called *plenum sensors*) to monitor the operating condition of the HVAC equipment.

Return (or Air Return)

The portion of the duct system that carries room air back to the HVAC equipment for conditioning or circulation. Most houses have only a few return air vents. The airflow through the return path must equal the airflow through the supply ducts.

Saver

A Smart Controller setting that tells the system to use a minimum amount of energy to condition a room. The room may still receive conditioning or circulation when necessary to satisfy the conditioning needs of other rooms. When in saver mode, the current comfort schedule for the room is ignored.

Select

The act of pressing an active area, such as a button, arrow, number, or word, on the touch screen. Many areas that you can press look like buttons. If you want to adjust a parameter, the general rule is to select one of its choice options.

Selected

A visible indication that a button has been pressed. The display is inverted from normal (dark changed to light or light changed to dark) when the button is selected. Also used to refer to the value of a multiple choice parameter. The selected choice is marked by a dot inside a circle. The choices not selected are marked by an empty circle.

Setback

An HVAC industry term for changing a thermostat's setting to a lower temperature for heating or a higher temperature for cooling as a way to save money. There are many conventional thermostats that perform automatic setbacks based on a programmable schedule.

Supply

The portion of the duct system that carries conditioned air to each vent in each room. The air output by the HVAC equipment (conditioned air) is called the *supply side*.

Touch screen

A graphical display screen that senses contact everywhere on the display area. Touching the screen sends information to the control computer.

(continued)

Glossary (continued)

Upper limit

The highest temperature for a comfort range. The system calls for cooling when the temperature reaches the upper limit.

Vent

The covering over the end of a duct that allows airflow into the room.

Zone

A room or group of rooms that has a unique comfort schedule. All rooms can be in one zone so there is only one comfort schedule for the whole house. A single room can be a zone and have its own comfort schedule different from any other room. Most people divide their house into two or three zones.

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