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Screen Temperature Display

You will probably notice as the Infinity / Evolution control is working that the room temperature display does not change very often. This is by design. The actual display you see is a number that has been rounded toward the set point. The actual temperature the control uses in its electronics is broken down into sixteenths of a degree.

So at times you will notice that equipment is operating, yet the display matches the set point. For example, a display of 70ºF could actually be 69.1 thru 70.9. This is the way all of our thermostats display temperature, and has been this way since the beginning.

Staging Algorithm and Anticipator

The control will continually calculate a demand using a built in Proportional/ Integral algorithm. This means that both time and temperature errors are taken into account before a decision to stage up or down is made. The anticipator setting is the third variable used to determine demand.

It is not possible in the field to determine staging demand at a particular point in time. This process is done in the background, and there is no access to the algorithm output other than pushing the right side button for three seconds. This will display the current equipment status which shows the current equipment stage (ON, OFF, HIGH, LOW, etc.)

As a rule of thumb, when the space temperature is ½ degree from set point, there is enough demand to turn on the equipment, and it generally will not over-condition by more than ½ degree on a normal cooling or heating mode. When dehumidifying, overcooling may be allowed, see dehumidification section.

When raising the anticipator setting, the equipment will turn on and stage up more slowly. It will also cycle off sooner. Raise the anticipator if the customer wants the equipment to cycle off sooner.

Zoned Systems Staging

Each zone's temperature is continually measured to within 1/16 degree. When any zone's demand is greater than 0.8 degree or the average of all zone demands is greater than 0.5 degree, the equipment is turned on or staged up one stage if it is already on. When the average demand of all zones is zero, the equipment turns off or stages down. This provides temperature control in all controlled zones within less than one degree off set point. Note that when a damper is closed, its zone is overconditioned, and other zones still have demand, the equipment will continue to run and this closed zone may become overconditioned. Under these conditions, it cannot be controlled.

Cooling only Operation

When the staging algorithm determines the cooling demand is sufficient to cycle on the equipment(approximately ½ degree), the outdoor unit and blower will turn on. On 2-stage systems, the unit will always start the cycle in low speed (unless high speed latching is active, initial power up of a Bristol system, of 12 hours off time on a Bristol system), and run a minimum of 10 minutes before staging up to high stage. Increasing the set point 5 degrees or more will **not** override this timer (this is true for software versions 3, 5, 6, 8, 10, but may change in the future). If after 10 minutes there is sufficient demand, the system will stage up to high. If the demand is stabilizing (not increasing), the system will remain in low stage beyond the 10 minute timer. There is no maximum run time in low stage. If the demand exactly matches the building load, the unit could run for extended periods in low stage. Extended run times are not a problem for the unit, and actually are desired to help control humidity and avoid the wear and tear of stop-start cycles.

The system may stage back and forth between high and low, and will cycle off when the demand is satisfied.

Cooling airflow is dependant on the size and type of outdoor unit installed, and the AC Airflow selection in the AC Set up menu. The available settings are:

-A Infinity / Evolution Cooling airflows

Comfort	Efficiency	Max	
		Low Stage	High / Single Stage
350 cfm/ton x airflow multiplier plus or minus dehumidify adjustments	350 cfm/ton x airflow multiplier	400 cfm/ton x airflow multiplier	400 cfm/ton

Airflow Multipliers for (-A) Infinity / Evolution Controls				
Model	Compressor	Tonnage	Low Stage	High Stage
All Single Stage	All	All	n/a	1
38TDB, YDB 598B, 698B	Bristol TS	all	0.63	1.05
24ANA7 25HNA6 187A 286A	Bristol TS	2	0.7	1
		3	0.7	1
		4	0.63	1
		5	0.7	1
24ANA1 25HNA9 180A 288A	Copeland Ultra Tech	2	0.95	1.15

Infinity / Evolution Dehumidify Function

This system dehumidifies based on inputs from both the room temperature, and the sensed humidity. The control uses these 2 variables to determine airflow level, and compressor stage. Below is a description of dehumidify operation:

There are 3 options for dehumidification,

1. Dehumidify (factory default)

   Also known as “Cool to dehumidify”, this option enables the full dehumidification algorithm. The equipment will operate on either a cooling call, or a dehumidify call without a cooling call as described in the charts below, depending on whether it’s a 2-speed or single speed unit. Overcooling up to 3 ºF is allowed at room temperatures of 75ºF and higher. As the room temperature is conditioned toward 70ºF, less over conditioning is allowed. Overcooling is not allowed below 70º F room temperature. On new (-A) models, “DEHUMIDIFYING” is displayed to the customer when the system is overcooling (new feature for version 10 software) .

   NOTE: AC Airflow must be set to Comfort for Dehumidify to be enabled.

2. Dehumidify only with a call for cooling

   If the Dehumidify feature is turned off in the Cooling Humidity screen, and AC airflow is set to Comfort, the equipment will only come on with a call for cooling, but will run reduced airflow to dehumidify during the cooling call if necessary. To access the Dehumidify option:

   Press and release Advanced button
   Press NEXT until the COOLING HUMIDITY screen appears
   Press SCROLL button down until DEHUMIDIFY is highlighted
   Press TEMPERATURE UP/DOWN button to turn DEHUMIDIFY off

3. Dehumidify features turned off
   If the AC airflow is changed from Comfort to Efficiency or Max, the system will not run reduced airflows to dehumidify and will work only to satisfy the cooling demand.

(Dehumidify function cntd.)
When all dehumidify options are enabled, there are 4 potential airflow stages.

Airflow Stage 1: Occurs from system off to dehumidify only demand. Or when cooling demand is satisfied and dehumidify demand still exists. Potential for this stage lasts only 10 minutes. After 10 minutes of run time, the system will not stage down to this stage.

Airflow Stage 2 (2-stage outdoor units only): Occurs after 10 minutes of stage 1 with only a dehumidification demand, or when low speed cooling demand exists and dehumidification demands exist.

Airflow Stage 3: Occurs with high speed cooling demand with or without dehumidification demand

Airflow Stage 4: Occurs with greater high speed cooling demand-not much airflow reduction with dehumidification demand

5 minute continuous fan off delay: if dehum demand existed at any time during the competed cycle, this will occur

Airflow for new platform 2-Stage Units using (–A) User Interface
24ANA7, 25HNA6, 24ANA1, 25HNA9 and 187A, 180A, 286A, 288A models

Cooling CFM/Ton for Two Stage ODU (=350 CFM/ton x % x Multiplier)

		Airflow Stage 1	Airflow Stage 2	Airflow Stage 3	Airflow Stage 4
		Dehumidify demand, no cooling demand **Lo Stage compressor only (high) = dehum airflow set to high in Furnace or Fan coil set up**	Dehumidify demand and / or Lo stage cooling demand	Hi Stage Cooling with or without Dehumidify demand	Greater Hi Stage cooling demand with or without dehumidify demand
A	**Dehumidify demand greater than 5%**	**52% (high=85%)** ***10 min -→***	**72%(high=85%)**	**93%**	**105%**
B	**Dehumidify demand 0 to +5%**	**72% (high=85%)** ***10 min -→***	**78% (high=85%)**	**100%**	**110%**
C	**Dehumidify demand satisfied by 0-5%**	**Cannot exist**	**85%**	**100%**	**110%**
D	**Dehumidify demand satisfied by more than 5%**	**Cannot exist**	**100%**	**100%**	**110%**

Multipliers to calculate airflow using (-A) Infinity / Evolution Control

Model	Compressor	Tonnage	Low Stage	High Stage
24ANA7 25HNA6 187A 286A	Bristol TS	2	0.7	1.0
		3	0.7	1.0
		4	0.63	1.0
		5	0.7	1.0
24ANA1 25HNA9 180A 288A	Copeland Ultra Tech	2	0.95	1.15

(Dehumidify function cntd.)

Cooling CFM/Ton for Two Stage Outdoor Unit (38TDB, YDB, 598B, 698B) ONLY

	Airflow Stage 1	**Airflow Stage 2**	**Airflow Stage 3**	**Airflow Stage 4**
	Dehumidify demand, no cooling demand **Lo Speed compressor only (high) = dehum airflow set to high in Furnace or Fan coil set up**	Dehumidify demand and / or Lo speed cooling demand	Hi Speed Cooling with or without Dehumidify demand	Greater Hi Speed cooling demand with or without dehumidify demand
Dehumidify demand greater than 5%	**126 (high=205*)* *10 min***	**173 (high=205)**	**325**	**375**
Dehumidify demand 0 to +5%	**173 (high=205) *10 min,***	**189 (high=205)**	**350**	**400**
Dehumidify demand satisfied by 0-5%	**Cannot exist**	**205**	**350**	**400**
Dehumidify demand satisfied by more than 5%	**Cannot exist**	**220**	**350**	**400**

Cooling CFM/Ton for all Single Stage Outdoor Units

	Airflow Stage 1	**Airflow Stage 3**	**Airflow Stage 4**
	Dehumidify demand only, no cooling demand **(high) = dehum airflow set to high in Furnace or Fan coil set up**	Dehumidify and /or Cooling Demand	Dehumidify and/or Greater Cooling Demand
Dehumidify demand greater than 5%	**200 (high=325) *10 min***	**275 (high=325)**	**375**
Dehumidify demand 0 to +5%	**275 (high=325) *10 min***	**325**	**400**
Dehumidify demand satisfied by 0-5%	**Cannot exist**	**350**	**400**
Dehumidify demand satisfied by more than 5%	**Cannot exist**	**350**	**400**

Coil Freeze Detection (new feature in –A models version 10 software)

This algorithm will attempt to detect a freezing coil while cooling is active. It will do this by periodically measuring the static pressure of the system, and comparing the restriction to the initial restriction on the system at the start of cooling. If the restriction has increased by a certain amount, then a *possible* freezing coil will be declared. The system will turn off cooling and immediately perform a filter check. If this new filter static pressure measurement has increased by a certain amount over the last "official" filter measurement (performed at 1pm, or mode change from OFF), then the coil will be declared as frozen. The system will continue to run the fan at the filter measurement speed with cooling off while taking restriction measurements every five minutes. A System Malfunction will be displayed and logged in the Last 10 Events. If the restriction measurement is reduced to a certain amount, or one hour has passed, then cooling will resume, if demand still exists.

On zoned systems, additional calculations will be performed to determine how much the fixed static pressure of the system has increased (due to a restricted coil). This will remove the affect damper movements have on total system static pressure.

Heat pump / Electric Strip Heating

In heat pump heating, there are 3 possible air flow settings. Software versions 3, 5, 6, 8, and 10 (-A models) use the AC airflow setting to determine the HP airflow setting. There is no separate heat pump air flow setting.

On a call for heating, the system will begin with the heat pump. If after 15 minutes the demand has not stabilized or decreased, the system will begin staging in electric heat. With self-identifying electric heaters, the system will stage through the heater stages with a 10 minute minimum run time per stage. If the demand stabilizes it will remain in its current stage, or if the demand is reduced, it will stage down to a lower stage. Ideally, the system will operate the minimum stage of heat necessary to begin reducing the demand.

With non-self identifying heaters, all the electric heat will come on with a call for auxiliary heat.

An auxiliary heat lock out setting is available to prohibit the heaters from coming on until the outdoor temperature is below the setting. During defrost, the auxiliary heat will come on and the lockout will be ignored. The amount of heat in defrost is dependant on the heat pump size and equipment stage. The control calculates the minimum amount of heat required to eliminate cold blow, and turns on the appropriate number of heater banks.

If a System Malfunction error is generated by the outdoor unit, the electric heat will operate and the lockout will be ignored. There is no heat pump lock out setting available with this system configuration.

Electric heat airflows are factory programmed depending on the heat pump / heater combination, and are not adjustable. Heat pump only heating airflows are as follows:

-A Infinity / Evolution Heat Pump Heating Airflows

Comfort			**Efficiency**	**Max**	
Between 12 and 61 outdoor	**Above 61 Outdoor**	**Below 12 Outdoor**	**All Times**	**Low Stage**	**High / Single Stage**
(3.5 x airflow multiplier x outdoor temp) + 137 CFM/ton	350 CFM/Ton x airflow multiplier	Use 12 deg for comfort calculation. May be higher depending on unit combination	350 CFM/Ton x airflow multiplier	400CFM/Ton x multiplier	400 CFM/Ton

Airflow Multipliers for (-A) Infinity / Evolution Controls				
All Single Stage	All	All	n/a	1
Model	Compressor	Tonnage	Low Stage	High Stage
38TDB, YDB 598B, 698B	Bristol TS	all	0.63	1.05
24ANA7 25HNA6 187A 286A	Bristol TS	2	0.7	1
		3	0.7	1
		4	0.63	1
		5	0.7	1
24ANA1 25HNA9 180A 288A	Copeland Ultra Tech	2	0.95	1.15

Strip Heat Only Heating

Electric strip heat may be used as primary heat source. If using a self-identifying heater, the system will stage on the heat using the proportional / integral algorithm used for heat pump heating. There will be a minimum of 10 minutes of run time before the system will stage up.

If a non-self identifying heater is used, you will need to select the heater during the learning process. It will then bring on all the heat any time there is a call for heating. It will not stage in the banks if the heater is non-self identifying. Approximate airflows will be as follows:

Approximate Airflow Delivery for (-A) Infinity / Evolution Systems in Straight Strip Heat Applications

FE4 Fan Coil Size	Electric Heater Size in strip heat only applications	Airflow Stage 1	Airflow Stage 2	Airflow Stage 3 Or non – Identifying heater
	5	406	469	625
	9, 10	423	488	650
	15	536	619	825
002	20	666	769	1025
	5	439	506	675
	9, 10	471	544	725
	15	553	638	850
003	20	715	825	1100
	5	439	506	675
	9, 10	471	544	725
	15	553	638	850
	20	715	825	1100
005	24, 30	910	1050	1400
	5	683	788	1050
	9, 10	683	788	1050
	15	683	788	1050
	20	715	825	1100
006	24, 30	1138	1313	1750

Furnace Only Heating

When using a gas furnace for heating, a heating cycle will begin based on the staging selection in the Furnace Setup menu. The following are the available selections:

System (factory default): The UI will control furnace staging. It will always begin in low stage, regardless of the demand, and will run a minimum of 10 minutes in low before staging up to high. If the demand is stabilizing or increasing after 10 minutes in low, the system will stage up to high. It will then stage back and forth between high and low, or stage to low and turn off depending on the demand condition.

High: high stage only
Low: Low stage only
Furnace: (available in non-zoned only) Furnace board controls heat staging

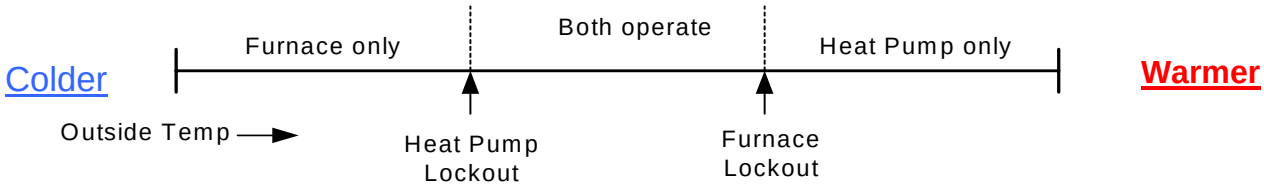
See furnace literature for low and high stage airflows

Hybrid Heat

When a Hybrid Heat system is installed and commissioned, there are 2 equipment lock out settings available. A setting is provided to lock out the furnace, and a second setting is provided to lock out the heat pump. The heat pump and furnace are not allowed to run together unless the heat pump is in the defrost mode.

The furnace lockout setting selects an outdoor temperature above which the furnace will not operate (except defrost or emergency heat). The heat pump lock out setting (balance point) selects an outdoor temperature below which the heat pump will not operate. When no lockouts are set, the heat pump will always start the heating cycle, and staging between units is controlled by system demand and staging timers (described below).

The heat pump lock out setting is located in the Heat Pump Setup screen and the Furnace Lockout setting is located in the Furnace Setup screen (see figures below). The outdoor temperature is read continuously during the heating cycle. If lockouts are set, the outdoor temperature at the start of the cycle determines whether the heat pump or furnace begin the heating cycle. The diagram below shows how the lockout temperatures affect system operation.



The Infinity/Evolution setup screens will self-configure to show the equipment installed. The Furnace Setup screen below reflects all the available setup options. In a Hybrid Heat system, the LOCKOUT TEMP setting will appear. This setting allows for the setup of a temperature between **NONE, or 5° to 55°** Factory Default is **NONE.** The furnace will not operate above this outdoor temperature, except for defrost or emergency heat. In defrost, the furnace will come on regardless of lock out settings and the call will be completed with the furnace**.**

Non-Hybrid Heat

FURNACE SETUP	
FURNACE AIRFLOW:	COMFORT
AC AIRFLOW:	COMFORT
DEHUM AIRFLOW:	NORMAL
LOW HEAT RISE:	OFF
STAGING:	SYSTEM
OFF DELAY:	90 SEC
< BACK	

Hybrid Heat

FURNACE SETUP	
FURNACE AIRFLOW:	COMFORT
AC AIRFLOW:	COMFORT
DEHUM AIRFLOW:	NORMAL
LOW HEAT RISE:	OFF
STAGING:	SYSTEM
OFF DELAY:	90 SEC
LOCKOUT TEMP:	> 40 F
< BACK	

(Hybrid Heat cntd)
With a Hybrid Heat system, the Heat Pump Lockout will be displayed in the Heat Pump Setup screen. The available settings are **NONE**, or **5° to 55°.** Factory Default is **NONE.** The temperature displayed is the outdoor temperature below which the heat pump will not operate.

Non - Hybrid Heat

HEAT PUMP SETUP	
COOLING LOCKOUT:	NONE
ENTERED SIZE:	36 KBTU
DEFROST INTERVAL:	90 MIN
HIGH COOL LATCH:	NON
< BACK	

Hybrid Heat

HEAT PUMP SETUP	
COOLING LOCKOUT:	NONE
ENTERED SIZE:	36 KBTU
DEFROST INTERVAL:	90 MIN
LOCKOUT TEMP:	< 15 F
HIGH COOL LATCH:	NONE
< BACK	

In original models, the Infinity/Evolution control has a built in five-degree dead band between the furnace and the heat pump lockout setting. The lockout settings cannot be set at the same temperature. In (-A) models, the lockout settings may be set to the same temperature.

Even though a Furnace Lockout may be set in the Setup screen, the furnace will still run during a defrost and finish the heating cycle on furnace.

If the system needs to stage down during normal heating mode, (because room temp is approaching the set temp), the system will stage from furnace back down to heat pump. There will be a two-minute delay between stages down in order to cool down the coil. If the furnace is on due to defrost, it will not stage down and will finish the cycle on furnace. Again, during defrost, the furnace will come on regardless of lockout settings.

Hybrid Heat Sequence of Operation; from satisfied to full heating:

1. First Stage heat pump
Ten-minute staging timer if 2-stage heat pump
Fifteen-minute timer if single stage heat pump
2. Second Stage heat pump (if a 2-stage heat pump)
Fifteen-minute different fuel time (Electric to Gas)
3. First Stage GAS (Heat pump off unless defrost)
Ten-minute staging timer
4. Second, stage GAS

Notes: With this control, heat stages are not shortened due to a 5-degree or higher demand. All stages are utilized for the full-allotted time described above. If the control determines it is making sufficient progress toward set point, it may not stage up after the staging timer has elapsed. Pressing the FAN and TEMPERATURE UP buttons simultaneously defeats cycle timers.

(Hybrid Heat cntd)

With a Hybrid Heat System, What happens if:

- The outdoor sensor fails – The system will always start a heating cycle with the heat pump and stage up and down as if no lockouts were set.

- The heat pump fails (fully communicating system) - if the heat pump control generates a SYSTEM MALFUNCTION fault, the system will stage up to the furnace after staging timers expire. The furnace lock is ignored during this process.

- The heat pump fails (non-communicating heat pump with NIM)- The system will not know if the heat pump is running, but it will naturally stage up to gas furnace once the staging timers have elapsed.

- The furnace fails to ignite, blower is OK (**original models)** - the system **will not** revert back to heat pump operation. It will continue to try and run the furnace to satisfy the demand.

- The furnace fails to ignite, blower is OK (**-A models**) - Once an ignition fault code is set by the furnace, the system **will** revert back to heat pump operation, and continue to run as long as a call exists. The heat pump lock out is ignored.

- No gas is available, but the heat pump is powered (**original models**) – Depending on lock out settings, the heat pump will operate until a defrost demand exists. It will then attempt to bring on the furnace during defrost. Since the furnace is used to complete the call when a defrost cycle occurs, the system will continue to attempt to run the furnace and **not** revert back to heat pump heating.

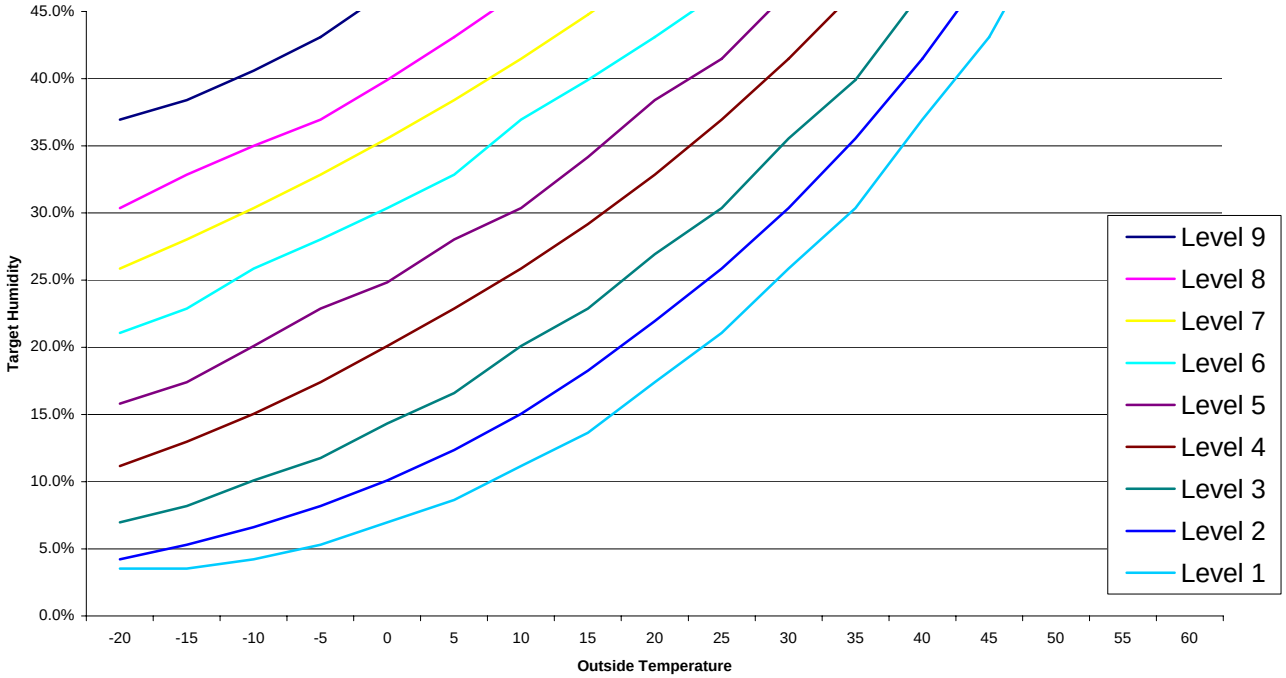
- No gas is available, but the heat pump is powered (**- A models**) - Once the furnace sets an ignition fault code, the system **will** revert back to heat pump operation, and continue to run as long as a call exists. The heat pump lock out setting is ignored, and the system will defrost normally.

Heating Humidification

The customer can select either Auto humidification or Manual. With Manual humidification, the user will select a fixed humidity target from 5% to 45%. With Auto selected, the user will select a relative level from 1 to 9, which represents the insulation level of their windows. When in Auto, the target humidity will be at 45% until the outdoor temperature triggers the system to begin following one of the curves below. **To view current target vs. humidity readings, press and hold the right side button for 3 seconds to access System Status**

For example, if an Auto Humidity setting is on Level 1(aqua arrows on chart) the humidity target will be at 45% until the outdoor temperature reaches around 47ºF. The target humidity will then follow the Level 1 curve as the outdoor temperature decreases. At 28 ºF, the target humidity will be at around 22%. If the Auto Humidity setting is on level 7 (gold arrows), the target humidity will be at 45% until the outdoor temperature reaches around 16ºF. It will then follow its curve as the outdoor temperature decreases. At around 6ºF, the target humidity will adjust to 38%.

The better the window, the higher the level the customer should select. Each of these levels corresponds to a psychrometric curve where the humidity target is selected based on indoor and outdoor temperature.



If the customer is experiencing condensation on their windows, then a lower level should be selected. Conversely, if no condensation appears, and higher humidity levels are desired, then select a higher level.
On the –A models, the Humidity with Fan selection will bring on the fan with a call for humidity without a call for heat. On original models, continuous can was required for this feature.

Ventilator Function

The ventilator has four settings in heating mode and three settings in cooling mode:

Heating - AUTO – the ventilator runs continuously and selects the ventilator fan speed based on indoor humidity and outdoor temp. It may cycle on/off every 30 minutes depending on humidity and outside temp.

LOW – low speed all of the time.
HIGH – high speed all of the time.
DEHUM – will only turn on if indoor humidity is 3% over the set point. The speed is determined by indoor humidity and outdoor temp.

Cooling - AUTO – the ventilator fan speed is selected based on indoor humidity and outdoor temp. It may cycle on/off every 30 minutes depending on humidity and outside temp.
LOW – low speed all of the time.
HIGH – high speed all of the time.

If the fan coil or furnace fan speed is set to Auto and the ventilator wants to run, the fan speed will run at High continuous speed on original UI controls. On –A model UI, it will run in low speed. Otherwise indoor unit fan will stay at the chosen continuous fan speed.

True Sense Dirty Filter Detection for (-A) User Interface

At 1:00 PM each day, or when the user switched the system from OFF to any operating mode, the fan will run at either 233 CFM/ton of cooling capacity or (90% High Heat Airflow/1.5), whichever is higher for one minute after heating/cooling is turned off (A heating or cooling call will be interrupted if in progress at 1:00 PM). If the furnace staging is set to LOW, then use the low furnace airflow/1.5 or cooling airflow (233 CFM/ton), whichever is highest. Blower RPM measurements are then taken and a static pressure is calculated.

If the blower has not run in the past 24 hours, the measurement will not be made. If the system is off and the fan is off (or Auto), the current measurement will not be performed.

Zoning Continuous Fan Operation

With the Infinity/Evolution system, one can select a different fan speed for each zone. Using the known relative size of each zone, a High, Medium, and Low fan speed can be calculated for each zone. High speed is the highest heating or cooling airflow (whichever is greater) multiplied by the zone size. For example, if the high cooling airflow is 2000 CFM, and a zone's size is 25%, High fan speed for that zone is 500 CFM (2000 x 25%). Medium speed is 75% of High speed, Low speed is 50% of High speed.

Each zone's desired CFM is calculated and summed together. The indoor unit blower is then driven to that summed speed. If all of the zones are demanding the same speed (High, Medium or Low) then the dampers are all positioned fully open (position 15). If a zone is requesting a lower speed than others, then its damper will close to a fixed position (10 for medium, 8 for low).

If one zone is calling for a continuous fan speed, and the other zones are all set to Auto, then a problem may arise. The minimum indoor unit blower speed may be greater than the CFM demanded from the zone. In these cases, the user interface will open the Auto zones to dump the air down to the required level demanded by the demanding zone. For example, a zone that wants continuous fan has a max airflow of 600 CFM; so Low speed continuous fan setting is 300 CFM (50%). So the system opens that zone to position 15 and delivers 300 CFM to that zone, but the indoor unit's minimum is 680 CFM, so the system has to find some place to dump the other 380 CFM. It opens the Auto zones enough to dump the 380, divided equally between them.

Now the fan setting is raised to High. The calling zone now wants 600 CFM. The indoor unit's minimum is still 680, so the calling zone stays wide open (15) and gets 600 CFM, the Auto zones now need to dump 80 CFM between them, so they do not need to open as much as before.

Zoning Duct Assessment

The system will perform a duct assessment every 24 hours at 1 PM in order to determine the relative size of every zone. The duct assessment will take approximately 1-½ minutes per zone to complete. The system will first open all zones and drive the blower to 175 CFM/ton of cooling (or the minimum indoor unit's airflow, whichever is greater). It will then take a static pressure measurement. The system will then close all zones and open one zone at a time, taking a static pressure measurement for each zone. The system will then close all zones and take a pressure measurement, getting a value for the duct leakage up to and through the dampers. With these static pressure measurements, the system will calculate the relative size of each zone as well as the percent leakage through the dampers.