

Aprilaire®



Aprilaire Zoned Comfort Control Product Guide

Making Zoning As Easy As



www.aprilairecontractor.com

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Why Choose Aprilaire?

1) The Right Products

- **Aprilaire® has the right controls for any job**—whether you are looking for simple low-cost control panels ideal for new construction, an expandable zone system for light commercial or the consumer benefits associated with the Model 6504 Intelligent Zoned Comfort system, we have the right control for your application.
- **The most reliable dampers available today**—the exclusive Flexible Link™ design eliminates the components most prone to failure... gears!
- **Thermostats to complete the job**—while most Aprilaire zone control systems are compatible with virtually any manufacturers thermostats, an Aprilaire thermostat is the best choice for a complete Aprilaire Zoned Comfort Control system.
- **Warranty**—Aprilaire products are warranted for five full years from installation, helping to protect your quality reputation.

2) Sales and Marketing Support

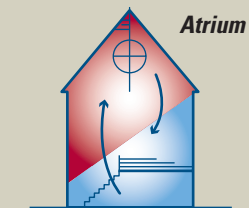
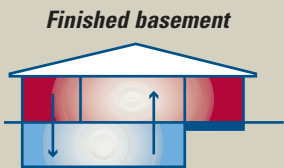
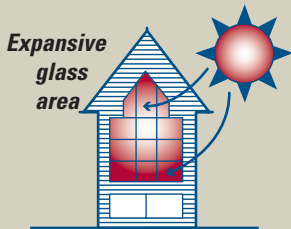
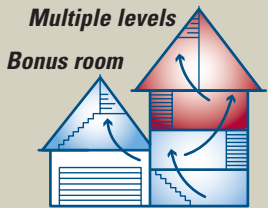
- **Aprilaire brand**—well recognized and respected, the Aprilaire brand is synonymous with reliable, simple-to-operate Indoor Air Quality products.
- **Free, high-quality sales literature**—drawing on our many years of marketing Zoned Comfort Control to consumers and light commercial users, we have developed a very compelling message for your customer that will make selling zoning easier for you.
- **Consumer website**—our state-of-the-art website, www.aprilaire.com, is designed to guide the consumer into a purchase decision. The effective problem/solution format helps support your selling message and close the sale!

3) Technical Support

- **Local training**—Aprilaire has local representation available for on-site training and support. Our district sales manager is there for you.
- **Unsurpassed technical support**—a Zoned Comfort Control expert will be answering your call! The Aprilaire team of technical support representatives takes pride in its mission to handle your issue with **ONE** call.
- **Additional support**—In addition to our highly trained experts answering your phone calls, we have a contractor only website designed to provide you with the technical documents you need, from installation manuals to technical bulletins. Aprilaire support is there for you 24/7 at www.aprilairecontractor.com.

An Overview of Aprilaire Zoned Comfort Control

**Zoning delivers
better comfort control
for various types
of floor plans**



What is a Zoned Comfort Control system?

Zoned Comfort Control is the practice of dividing a home or building into separate areas or 'zones' to be independently heated or cooled based upon the demand in each zone. Typically the term refers to a single piece of equipment controlled by two or more thermostats. Some may use the term 'zoned' when referring to the installation of multiple heating or cooling systems. However, the classic use of the term implies that a single heating and cooling system is divided, by means of its ductwork, to serve multiple zones each with their own individual thermostat control. Further, zone dampers are located in the ductwork to direct the conditioned air to where it's needed, when it's needed. A control panel coordinates the operation of the equipment with the distribution of the conditioned air.

Why would a homeowner or light commercial user need Zoned Comfort Control?

It is nearly impossible to maintain comfort throughout a home or building from one thermostat. The thermostat only measures the temperature where it is located; therefore, you may be very comfortable near the thermostat while areas further away or directly above or below will not be comfortable. Virtually every structure has varying requirements depending upon the room or area. For example, because heat rises, rooms on the upper levels will always be warmer than on the first floor. Other examples that produce the need for Zoned Comfort Control are:

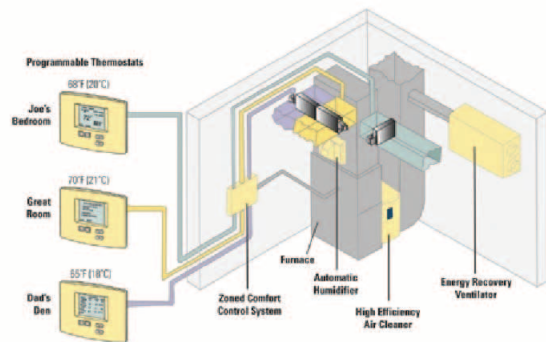
Exposure: expansive south-facing glass will soak up the sun during the day and lose more heat at night

Construction: rooms built over an unconditioned space or built over a slab have different heating/cooling requirements than areas over conditioned spaces

Occupancy: the ability to set back the thermostat setting in unoccupied areas saves energy

What are the components of a Zoned Comfort Control system?

The system is comprised of virtually any forced air HVAC equipment, a control panel, dampers (usually one for each zone, however, multiple dampers may be used), thermostats (one for each zone) and the ductwork. In addition, depending upon the system's design, a bypass damper may be required for pressure relief.



How does Zoned Comfort Control work?

Thermostats in each zone are wired to the Zoned Comfort Control panel. The control panel is then wired to the HVAC equipment and to zone dampers located in the system's ductwork. The control panel understands each zone's need for conditioning and operates the equipment (on/off) while controlling the position of the dampers (open/closed) based upon the thermostat requirements. This assures that conditioned air is directed where and when it's needed.

When is the best time for a Zoned Comfort Control system to be installed?

It is least expensive and easiest to install in a new home. However, in most cases, Zoned Comfort Control can be added to existing systems at any time. Retrofit applications can pose challenges, but Aprilaire® addresses these challenges with a special retrofit damper designed to be low in cost and easy to install in existing systems.

Why is pressure relief an issue with Zoned Comfort Control systems?

It is important to design zone systems to account for the added system pressure that is caused when zone dampers are closed. With Zoned Comfort Control, as dampers close to restrict airflow to non-calling areas, the equipment will attempt to deliver its full capacity, although only a percentage of airflow is required. Therefore, to avoid problems that are associated with restricting the airflow, (i.e., high limit, freezing of the coil, air noise) some method of pressure relief is required. This may include over-sizing of the ductwork (all zones capable of carrying 70% of the system's airflow), using a bypass damper, or Aprilaire's exclusive 'Controlled Pressure Relief (CPR)' method. The CPR method involves slightly over-sizing the system's supply ductwork while an engineered amount of bypass is allowed into a closed zone. This method eliminates the need for a bypass damper, minimizing system cost while maximizing comfort. (For more information on designing for pressure relief, see the Aprilaire Design Manual, Form #5001.)

Zoning is the more profitable solution.

Just like all good businesses, HVAC contractors are always looking for an “edge” over their competition. Whether you are attempting to maintain your profitability against stiffened competition in a tightening new construction market or looking for creative ways to secure new business, Zoned Comfort Control is the answer.

Zoned Comfort Control has been around for many years. Even before zone dampers and controls, HVAC contractors provided “zoned” heating and cooling by installing multiple systems to generate a greater level of comfort and energy-savings for homeowners. However, the economics of the multi-system approach prove inferior and have grown worse with the new federal mandate for 13 SEER equipment.

Not everyone has embraced or fully understands the benefits of Zoned Comfort Control. Perhaps they are simply under the impression that they are making more profit by selling two systems. However, the reality is that you can accomplish improved comfort and energy savings through installing Zone Comfort Control at a lower cost, with greater profit, than installing two separate systems. In addition, you will provide the consumer with an HVAC system that costs less to maintain. Here is an example:

	Two 2 1/2 Ton Systems			One 5 Ton System, Zoned		
		Cost/Unit	System Cost		Cost/Unit	System Cost
Equipment	(2) Furnaces (1000 CFM each)	\$798	\$1,596	2000 CFM Furnace	\$1,034	\$1,034
	Two 2.5 Ton AC unit	\$711	\$1,422	5 Ton AC unit	\$1,248	\$1,248
	(2) Evap Coils (std Orifice/cap tube)	\$222	\$444	(1) Evap Coils (std Orifice/cap tube)	\$366	\$366
	(2) Line Sets	\$50	\$100	(1) Line Set	\$50	\$50
	(4) Mounting Pads (Furnace & Cond Unit)	\$20	\$80	(2) Mounting Pads (Furnace & Cond Unit)	\$20	\$40
	(2) Gas Lines	\$300	\$600	(1) Gas Line	\$300	\$300
	(2) Sets of Vent Pipes	\$350	\$700	(1) Set of Vent Pipes	\$350	\$350
	(2) Humidifiers	\$350	\$700	(1) Humidifier	\$350	\$350
	(2) Air Cleaner	\$250	\$500	(1) Air Cleaner	\$250	\$250
6" Branch Ductwork*	20 (10' Each)	\$150	\$3,000	24 (10' Each)	\$150	\$3,600
Dampers			NA	Two - 14" Round Dampers	\$110	\$220
Zone Control Panel			NA	Zone Control Panel	\$95	\$95
Wire, Transformer, etc			NA	Transformer	\$50	\$50
Labor	(32) Hours	\$35	\$1,120	(24) Hours	\$35	\$840
Total			\$10,262			\$8,793
Zoning difference vs. two systems						\$1,469
A savings of more than						14%

*Cost of ductwork not noted is equivalent in both systems. Zoning may require additional branches which are accounted for.

As you can see from our example, the contractor cost is \$1,469 less when offering Aprilaire® zoning versus two systems. Additionally, there are many other important factors to consider aside from the equipment cost alone. For example:

- Two systems require six slots in electrical panel to be taken (2x for each A/C unit and 1x for the furnace) versus three slots for a zoned system.
- Incidentals such as a condensate pump (where applicable) for each system must also be taken into account.
- There are numerous space issues with having to place two furnaces, two sets of vent piping, two condensers (which are now larger) etc.
- Most often a house has limited space for intakes/exhausts due to a garage taking one side, the front side being undesirable for equipment, and the rear usually being partially taken up by a patio, leaving only one side and possibly some rear area for equipment. Code dictates placement in many cases:
 - Fresh air intake must be ten feet away from any exhaust or gas/electrical service
 - Exhaust vent must be four feet from the gas regulator
 - Intake vent must be one foot lower than exhaust
 - Exhaust vent must be one foot from windows

The fact is that everyone benefits!

- | | |
|--------------------------|---|
| How the home owner wins: | <ul style="list-style-type: none"> • True zoned comfort • Lower maintenance costs • Potential for added Indoor Air Quality benefits • Energy savings versus a single non-zoned system |
| How the contractor wins: | <ul style="list-style-type: none"> • Win more bids • Make more profit • Happy builders |
| How the builder wins: | <ul style="list-style-type: none"> • Satisfied homeowners • Potential cost control versus 13 SEER mandate • Less time needed by contractor in the home |

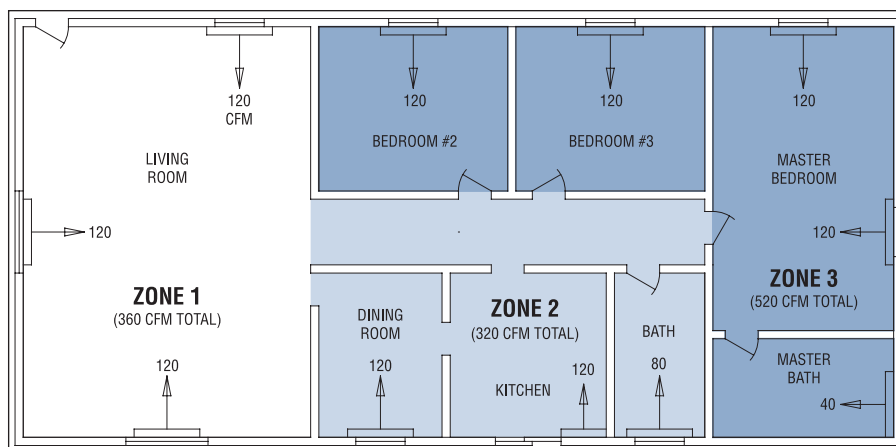
Today's homes need Zoned Comfort Control and zoning has many advantages over multiple systems. Contact your local Aprilaire representative to discuss how you can benefit.

Designing An Aprilaire Zone Is As Easy As



HVAC SYSTEM SIZING WHEN ZONING

Designing a system to incorporate zoning is really no different than designing a non-zoned system. You still need to size for peak demand based upon a good Manual 'J' calculation and you still need to understand how much air is to be delivered to each room, again based upon Manual 'J'.



Designing the Zone System

Refer to the Aprilaire® Zoned Comfort Control Design Guide (Form #5001) for complete and detailed information regarding system design. Here are the basic 1-2-3 steps.

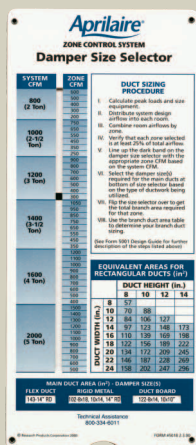
1 Selecting Zones

The first thing that is required after you have determined what type and size forced air heating and cooling equipment you will be using is determining which rooms will make up the various zones for your system. Considerations include:

- Occupancy:** group rooms based upon their common occupancy patterns (i.e., bedrooms together or living, dining and kitchen together).
- Exposure/Construction:** group rooms that have similar load patterns (i.e., first floor versus second floor, south facing versus north facing).
- Size:** ideally, each zone should be approximately equal in size. Having smaller zones could potentially increase velocity and air noise.

Some additional thoughts:

- The more open the floor plan, the less ability you will have to “contain” the temperatures (air) within zones. Establish your customer’s expectations up front.
- More is not always better. In the case of zoning, there are significant tradeoffs when determining zones. Some customers may believe that “more is better,” which can create unequal, and in some cases, very small zones. Resist the temptation of selling as many zones as possible since you may never realize the additional profits due to persistent call-backs. Refer to ‘c’ above.



CONVENIENT DESIGN
TOOL AVAILABLE -
FORM #5018

2 Determine Bypass Method

- **Controlled Pressure Relief method:** the unique Aprilaire® method of zoning that doesn't require a bypass damper and, therefore, minimizes system costs. The Controlled Pressure Relief method assures a minimum of 85% of design airflow across the evaporative coil at all times, while not affecting the temperature of non-calling zones by more than 1°F, assuring system performance and comfort. By following our engineered design methods, which include slightly over-sizing the duct system and utilizing Aprilaire factory-preset dampers, we relieve pressure into non-calling zones without affecting the temperature (see Form #5001 for design details). Controlled Pressure Relief is perfect for residential new construction applications.

Positives: assures proper airflow; simplifies installation; lowers system costs.

Negatives: may not be applicable to existing systems; each zone must represent at least 25% of total system airflow.

- **Bypass Damper method:** allows the system designer to size the ductwork in the same manner as a non-zoned application. The pressure relief is handled by use of a bypass damper directing excess airflow back to the return or to a dump zone.

Determine bypass damper sizing: the purpose of the bypass damper is to maintain airflow through the HVAC equipment when zone dampers close. Sizing the bypass damper is calculated considering worst case scenario. Subtract the air flow of the smallest zone from the total system airflow and the difference is how much air you need to bypass. (**Total system CFM - Smallest zone CFM = Amount of air to bypass**). Then, refer to the bypass damper sizing chart for the right size bypass damper.

Positives: utilizes existing duct design methods; good retrofit option.

Negatives: potential of bypassed air conditioning the return or dump zone; requires plenum temperature control (included with Aprilaire zone panels).

- **Oversize method:** entails sizing the ductwork (main and branches) in each zone to accommodate approximately 70% of the total system airflow.

Positives: no bypass damper is needed; low likelihood of air noise.

Negatives: cost (duct materials); requires additional space; can result in lack of velocity or "throw" from the registers.

3 Selecting Zone System Components

The following pages will assist you with selecting the right components for the job.

- Select control panel based upon:
 - Type of equipment to be controlled (heat/cool or heat pump, single- or multi-stage)
 - Number of zones to be controlled
 - Additional feature needs (i.e., customer would like the ability to change thermostat settings from any thermostat, in which case you would choose the Model 6504)
- Select the correct type and size dampers for the job
- Select the correct thermostats



Aprilaire Zone Comfort Control Panels

There are three important questions that need to be answered before choosing a control panel:

- 1** What type of equipment do you want to control? This refers to whether you want to control a conventional heat/cool system such as a split system furnace and air conditioner or a heat pump. Aprilaire® works with all types of forced-air systems including gas or electric furnaces, air-to-air or water source heat pump, as well as combination systems such as dual fuel set-ups.
- 2** Is the equipment single-stage or multi-stage? While single-stage is fairly straightforward, multi-stage equipment may offer choices for the control panel. For example, you may choose to have multi-stage equipment upstage based on timers or other controls internal to the piece of equipment. If so, use a single-stage control panel. However, if you are looking for the control panel or the thermostats to provide staging of the equipment, then a multi-stage control panel is required.
- 3** How many zones will you be controlling? This is determined by your evaluation of the home or building as well as the desires of the user. Once determined, select the control panel that fits the design. In some applications it may be worth considering a panel that provides an extra zone in case a new zone is added later. For example, if the customer is considering finishing a basement or attic space at a later date, this extra zone will be available.

	1	Conventional Heat / Cool								Heat Pump							
		2				3				4				5			
		2	3	4	4-12	2	3	4	4-12	2	3	4	4-12	2	3	4	4-12
Model 6202		•															
Model 6203		•	•														
Model 6303										•	•						
Model 6404		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Model 6504		•	•	•		•	•	•		•	•	•		•	•	•	

The next step in the control panel selection process is to determine whether any additional control features are desired. The following pages describe the additional features offered with the Aprilaire Zoned Comfort Control system. Take some time to read over what each has to offer prior to sitting down with your prospective customers.

1 6202 and 6203 Control Panels

SIMPLE, COST-EFFECTIVE ZONED COMFORT CONTROL

The 6200 Series control panels are designed for single-stage heat/cool systems only. The simple and straight-forward installation prevents time wasted on complicated set-up steps that could create a callback. The simplicity and low cost make the 6200 Series control panels perfect for new construction applications or as an add-on for an existing home.



The Model 6202 is for two-zone applications and the Model 6203 can be used for two- or three-zone systems. Each has all the basic features required for a solid performing zoned comfort system.

THERMOSTAT REQUIREMENTS

ZONE	TYPE	TERMINALS REQUIRED*	RECOMMENDED THERMOSTATS
All Zones	Single-Stage Heat/Cool	R (24V-hot) W (Heat) Y (Cool) G (Fan)	Programmable • Aprilaire Model 8363 • Aprilaire Model 8570
			Non-Programmable • Aprilaire Model 8344

*An available "C" terminal (24-volt common) in each zone of the control panel can be used for 24-volt powered thermostats.

Models 6202 and 6203

CONSUMER BENEFITS	CONTRACTOR BENEFITS
ANY ZONE SETS MODE <ul style="list-style-type: none"> Provides true independent control for each zone. CONTINUOUS FAN BY ZONE <ul style="list-style-type: none"> Individual zone thermostats can call for fan operation by zone. ZONE CHANGEOVER BASED ON TIME <ul style="list-style-type: none"> If calls for opposite modes exist, the control panel will alternate to satisfy each call. FAN PURGE <ul style="list-style-type: none"> Assures air is directed to last zone(s) calling. SHORT CYCLE PROTECTION <ul style="list-style-type: none"> Protects the HVAC equipment from too frequent cycling. MAINTENANCE FREE <ul style="list-style-type: none"> No maintenance or adjustments needed after installation. 	PLENUM TEMPERATURE CONTROL (ADJUSTABLE) <ul style="list-style-type: none"> Protects equipment from excessive high and low temperatures caused by reduced airflow when small zones are calling. L.E.D. STATUS INDICATORS <ul style="list-style-type: none"> Simplifies start up and troubleshooting for the contractor. TIME DELAY OVERRIDE <ul style="list-style-type: none"> Speeds checkout for the installer. WORKS WITH TWO OR THREE WIRE DAMPERS <ul style="list-style-type: none"> Compatibility if you are changing out an old panel with three wire dampers. FUSE PROTECTION <ul style="list-style-type: none"> Protects the control panel against mis-wiring. EXTRA FUSE ON BOARD <ul style="list-style-type: none"> Convenience if fuse blows. ADJUSTABLE PURGE TIMING <ul style="list-style-type: none"> Compatibility with all brands of equipment. ELECTRIC / NON-ELECTRIC SWITCH <ul style="list-style-type: none"> Proper control of the fan (G-terminal) for either electric or fossil fuel furnaces.

6303 Control Panel

THE EASIEST HEAT PUMP CONTROL AVAILABLE

The Model 6303 control panel is designed for single-stage compressor, heat pump systems only. A single-stage heat/cool (four wire) thermostat can be used in each zone for the most economical installation solution; however, a heat pump thermostat can be used in zone one for living space control of the emergency heat mode. When heat/cool thermostats are used in all zones, emergency heat is set at the control panel via a convenient switch. Auxiliary heat is controlled by a fixed timer set for 20 minutes to assure homeowner comfort without expensive heat pump thermostats. The simplicity and low cost of the Model 6303 make it perfect for new construction applications or existing homes.



THERMOSTAT REQUIREMENTS

ZONE	TYPE	TERMINALS REQUIRED*	RECOMMENDED THERMOSTATS
Zones 1–3	Single-Stage Heat/Cool	R (24V-hot) W (Heat) Y (Cool) G (Fan)	Programmable • Aprilaire Model 8363 • Aprilaire Model 8570
			Non-Programmable • Aprilaire Model 8344
Zone 1 Only (Provides control of Emergency Heat from Thermostat)	Single-Stage Heat Pump	R (24V-hot) O (Reversing Valve-Cool) W (Auxiliary Heat) Y (Compressor) G (Fan)	Programmable • Aprilaire Model 8365 • Aprilaire Model 8570
			Non-Programmable • Aprilaire Model 8346

*An available "C" terminal (24-volt common) in each zone of the control panel can be used for 24-volt powered thermostats.

Model 6303

CONSUMER BENEFITS

ANY ZONE SETS MODE

- Provides true independent control for each zone.

CONTINUOUS FAN BY ZONE

- Individual zone thermostats can call for fan operation by zone.

ZONE CHANGEOVER BASED ON TIME

- If calls for opposite modes exist, the control panel will alternate to satisfy each call.

FAN PURGE

- Assures air is directed to last zone(s) calling.

SHORT CYCLE PROTECTION

- Protects the HVAC equipment from too frequent cycling.

MAINTENANCE FREE

- No maintenance or adjustments needed after installation.

CONTRACTOR BENEFITS

PLENUM TEMPERATURE CONTROL (ADJUSTABLE)

- Protects equipment from excessive high and low temperatures caused by reduced airflow when small zones are calling.

THERMOSTAT FLEXIBILITY

- Use any four wire heat/cool thermostat in each zone or a heat pump thermostat in zone one.

L.E.D. STATUS INDICATORS

- Simplifies start up and troubleshooting for the contractor.

TIME DELAY OVERRIDE

- Speeds checkout for the installer.

WORKS WITH TWO OR THREE WIRE DAMPERS

- Compatibility if you are changing out an old panel with three wire dampers.

ADJUSTABLE PURGE TIMING

- Compatibility with all brands of equipment.

ELECTRIC / NON-ELECTRIC SWITCH

- Proper control of the fan (G-terminal) for either electric or fossil fuel furnaces.

1 6404 Control Panel

THE “ONE” CONTROL PANEL THAT DOES IT ALL

The Model 6404 control panel is the “One” control panel for any type of zoning application from two to twelve zones. It can be configured for single- or multi-stage, heat/cool or heat pump and it's perfect for residential or light commercial applications. Simple, four wire thermostats can be used in all zones. The multiple staging options offered with the Model 6404 provide you the flexibility to customize the system around the equipment being controlled and the desires of your customers. You can choose from timed-staging (adjustable), set up the system to stage based upon the number of zones calling, or even use multi-stage thermostats for the most precise control.

The Model 6402 expansion panel is used with the Model 6404 control panel to expand from four to twelve zones in two zone increments.



Model 6404 (and 6402)

CONSUMER BENEFITS

ANY ZONE SETS MODE

- Provides true independent control for each zone.

CONTINUOUS FAN BY ZONE

- Individual zone thermostats can call for fan operation.

VACATION OPERATION

- Allows system to operate in setback from the thermostat designated zone one when leaving for extended periods.

ZONE CHANGEOVER BASED ON TIME

- If calls for opposite modes exist, the control panel will alternate to satisfy each call.

L.E.D. STATUS INDICATORS

- Visible through the cover, the L.E.D.'s allow your customer to aid in troubleshooting.

FAN PURGE

- Assures air is directed to last zone(s) calling.

SHORT CYCLE PROTECTION

- Protects the HVAC equipment from too frequent cycling.

MAINTENANCE FREE

- No maintenance or adjustments needed after installation.

MODEL 6402 ZONE EXPANSION PANEL

- L.E.D. indicators simplify start-up and troubleshooting.
- Fuse protected.
- Easy wire 45° angled terminals.

CONTRACTOR BENEFITS

PLENUM TEMPERATURE CONTROL (ADJUSTABLE)

- Protects equipment from excessive high and low temperatures caused by reduced airflow or bypassing to the return.

SINGLE CONTROL FOR ALL EQUIPMENT TYPES

- Operates single- or multi-stage heat/cool or heat pump systems up to twelve zones.

THERMOSTAT FLEXIBILITY

- Use single- or multi-stage heat/cool or heat pump thermostats depending on the application. Simple four wire heat/cool thermostats can control any type of equipment.

L.E.D. STATUS INDICATORS (VISIBLE THROUGH COVER)

- Simplifies start up and troubleshooting.

SELECTABLE STAGING OPTIONS

- Stage by time, thermostat input or number of zones calling.

TIME DELAY OVERRIDE

- Speeds checkout for the installer.

WORKS WITH TWO OR THREE WIRE DAMPERS

- Compatibility if you are changing out an old panel with three wire dampers.

ADJUSTABLE PURGE TIMING

- Compatibility with all brands of equipment.

ACCESSORY TERMINALS

- Auxiliary output relays available to control humidifiers, electronic air cleaners or other accessories tied to heat or blower operation.

DUAL FUEL OPERATION

- Control of heat pumps with fossil fuel auxiliary heat.

6504 Control Panel

THE ULTIMATE IN COMFORT, CONVENIENCE, AND CONTROL

The Model 6504 is the control panel to choose when your customers demand the best. It controls all types of HVAC equipment and provides state-of-the-art features found in no other control panel offered today.

The system utilizes a Model 8570 premium thermostat in each zone with a simple, four wire connection to the zone panel, regardless of the HVAC equipment type (heat/cool, heat pump, single- or multi-stage). Connection is also provided for an Aprilaire® automatic humidifier control to share the homes relative humidity (RH) level and the outdoor temperature with each thermostat and optimize humidity control. The simple, menu-driven operation of the Model 8570 provides: easy operation; the ability to control any zone from any other; and the ability to view RH at each thermostat—providing user convenience. The built-in ventilation control helps assure a healthful and comfortable home environment. Simply intelligent!



Model 6504

CONSUMER BENEFITS

UNPARALLELED COMFORT AND CONVENIENCE

- Control temperature based upon the need in each zone.
- “Global changes”—allows changes to any one zone or all zones from any thermostat in the system.
- Enhanced humidifier performance through extending blower run time. Each thermostat even displays when the Aprilaire humidifier is operating.
- View outdoor temperature and indoor relative humidity on every thermostat. (Aprilaire automatic humidifier control required for RH display.)
- Maintenance reminders for air filter, humidifier, UV lamp, and HVAC service assure peak performance and save the homeowner time by displaying contractor contact information.

ASSURES PROPER VENTILATION

- Built-in ventilation control allows the home to “breathe” properly when equipped with a fresh air damper.
- Won’t bring in outside air that is too hot or cold.

SIMPLEST OPERATION

- The Model 8570 thermostat features menu-driven programming for easy operation—even without a manual.

CONTRACTOR BENEFITS

SIMPLIFIES SYSTEM SELLING PROCESS

- Makes it possible to present your customer with one buying decision—a complete Aprilaire Indoor Air Quality system.
- Provides even more value than individual Aprilaire products through enhanced system capabilities.

SIMPLE INSTALLATION

- Thermostat wiring is easy. A simple, four wire connection is all that’s required regardless of system type or accessories used.
- Loaded with self diagnostic features that make installation and checkout quick and effortless.
- Automatic thermostat recognition with L.E.D. indication.
- System test button and L.E.D. indicators automatically sequence through all the control outputs to assure operation.
- The system will automatically send a message to the thermostat display if any set-up options don’t coincide between the thermostat and control panel.

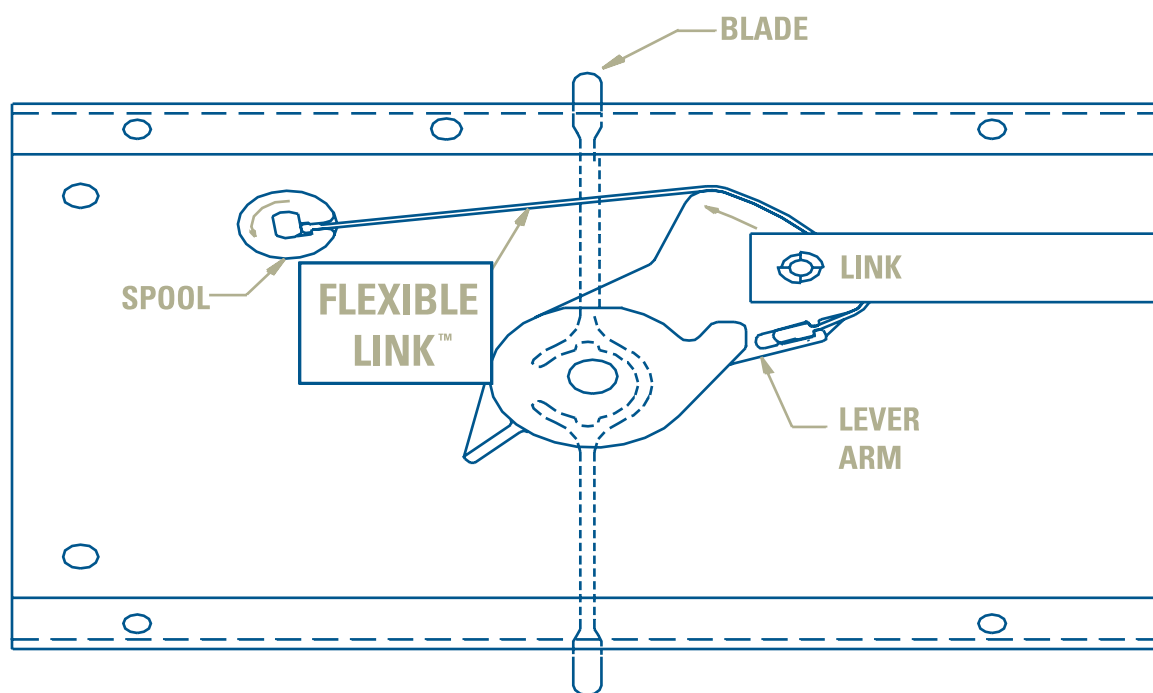
DUAL FUEL OPERATION

- Control of heat pumps with fossil fuel auxiliary heat.



The “Engineered Reliability” of Aprilaire Zoned Comfort Control Dampers

Aprilaire® residential dampers feature a technological breakthrough in damper design. The Flexible Link™ design used in Aprilaire dampers eliminates the component most prone to failure in competitor’s residential dampers... **GEARS!** The simple, yet ultra-reliable design is illustrated below. As the damper motor rotates the SPOOL, the Flexible Link shortens and the spring-loaded LEVER ARM rotates the blade. When power to the motor turns off, the spring quietly returns the blade to the open, “Fail-Safe” position. It’s really that simple.



Rectangular Dampers

Aprilaire® offers all the rectangular sizes you need for residential and light commercial applications. Residential sizes feature the exclusive Flexible Link™ design while the larger, light commercial sizes (shaded blue in the table) utilize actuators matched to the needed torque requirements from a well-respected commercial actuator supplier.



REPLACEMENT PARTS

- Model 6992 - Motor (gear shaft) for older Aprilaire and PerfectTemp™ dampers. (Identified by metal actuator cover.)
- Model 6993 - Motor (shaft with two flat sides) for all Flexible Link style Aprilaire dampers. (Identified by plastic actuator cover.)
- Model 6997 - Direct couple motor. (Identified as shaded, light commercial dampers in chart.)

Rectangular Dampers Size & Stock No.		Nominal Width												
		8" (200mm)	10" (250mm)	12" (300mm)	14" (350mm)	16" (400mm)	18" (450mm)	20" (500mm)	22" (550mm)	24" (600mm)	26" (650mm)	28" (700mm)	30" (750mm)	
Side Mount (Motor on short side)	Nominal Height	8" (200mm)	6721	6722	6723	6724	6725	6726	6727	6728	6729	6730	6731	6753
		10" (250 mm)	—	6732	6733	6734	6735	6736	6737	6738	6739	6740	6741	6742
		12" (300 mm)	—	—	6743	6744	6745	6746	6747	6748	6749	6750	6751	6752
		14" (350 mm)	—	—	—	6754	6755	6756	6757	6758	6759	6760	6761	6762
		16" (400 mm)	—	—	—	—	6763	6764	6765	6766	6767	6768	6769	6770
		18" (450 mm)	—	—	—	—	—	6771	6772	6773	6774	6775	6776	6777
		20" (500 mm)	—	—	—	—	—	—	6778	6779	6780	6781	6782	6783
		22" (550 mm)	—	—	—	—	—	—	—	6784	6785	6786	6787	6788
		24" (600 mm)	—	—	—	—	—	—	—	—	6789	6790	6791	6792
		26" (650 mm)	—	—	—	—	—	—	—	—	—	6793	6794	6795
		28" (700 mm)	—	—	—	—	—	—	—	—	—	—	6796	6797
		30" (750 mm)	—	—	—	—	—	—	—	—	—	—	—	6798
Bottom Mount (Motor on long side)	8" (200 mm)	6721	6812	6813	6814	6815	6816	6817	6818	6819	—	—	—	
	10" (250 mm)	—	6732	6823	6824	6825	6826	6827	6828	6829	—	—	—	
	12" (300 mm)	—	—	6743	6734	6835	6836	6837	6838	6839	—	—	—	

RESIDENTIAL FEATURES

- POWER-CLOSE/SPRING-OPEN OPERATION
- TWO WIRE INSTALLATION
- 24VAC, 6W, 10VA
- 60HZ SYNCHRONOUS TYPE MOTOR
- IMPEDANCE PROTECTED FOR CONTINUOUS STALL
- ADJUSTABLE STOP
- INSTALLS IN 4.25 INCH SLOT IN DUCT

NOTE: ACTUAL HEIGHT IS UNDERCUT 0.1875 INCH
ACTUAL WIDTH IS UNDERCUT 0.125 INCH

LIGHT COMMERCIAL FEATURES (SHADED)

- DIRECT COUPLED, POWER-CLOSE/SPRING-OPEN
- TWO WIRE INSTALLATION
- 24VAC, 5W, 7VA
- NEMA 2 ENCLOSURE
- ADJUSTABLE STOP
- 35 IN./LB. TORQUE
- INSTALLS IN 5.25 INCH SLOT IN DUCT

NOTE: ACTUAL HEIGHT & WIDTH ARE UNDERCUT 0.25 INCH

Round Dampers

Aprilaire® round dampers come in all the sizes you need and work well with either rigid metal or flex duct. Adjustable blade positioning and an integrated foam seal provide flexibility for any type of zone job.



REPLACEMENT PARTS

Model 6992 - Motor (gear shaft) for 18" and 20" round dampers and older Aprilaire and PerfectTemp™ round dampers. (Identified by metal actuator cover.)

Model 6993 - Motor (shaft with two flat sides) for all Flexible Link™ style Aprilaire round dampers. (Identified by plastic actuator cover.)

Round Dampers Size & Stock No.	Nominal Diameter							
	6" (153mm)	8" (200mm)	10" (250mm)	12" (300mm)	14" (350mm)	16" (400mm)	18" (450mm)	20" (500mm)
Zone (normally-open / power-close)	6606	6608	6610	6612	6614	6616	6618	6620
Ventilation (normally-closed / power-open)	6506	6508	—	—	—	—	—	—

6600 Series

SPECIFICATIONS

- **POWER-CLOSE/SPRING-OPEN OPERATION**
- **TWO WIRE INSTALLATION**
- **24VAC, 6W, 10VA**
- **60HZ SYNCHRONOUS TYPE MOTOR**
- **IMPEDANCE PROTECTED FOR CONTINUOUS STALL**
- **ADJUSTABLE STOP (IN CLOSED POSITION)**

6500 Series

SPECIFICATIONS

- **POWER-OPEN/SPRING-CLOSE OPERATION**
- **TWO WIRE INSTALLATION**
- **24VAC, 6W, 10VA**
- **60HZ SYNCHRONOUS TYPE MOTOR**
- **IMPEDANCE PROTECTED FOR CONTINUOUS STALL**
- **ADJUSTABLE STOP (IN OPEN POSITION)**

Barometric Bypass Dampers

Aprilaire® barometric dampers are simple to install and adjust. We offer all the sizes you need to complete your zoning applications.

Round Dampers Size & Stock No.	Nominal Diameter				
	8" (200mm)	10" (250mm)	12" (300mm)	14" (350mm)	16" (400mm)
Barometric pressure relief (weight activated)	6908	6910	6912	6914	6916

PRODUCT FEATURES

- LEFT OR RIGHT HAND MOUNTED WEIGHT ARM
- INTEGRATED FOAM SEAL
- HORIZONTAL OR UP FLOW ORIENTATION
- CRIMPED END FOR EASY INSTALLATION
- RIGID CONSTRUCTION HOLDS ITS SHAPE



Static Pressure Bypass Dampers

Static pressure controlled dampers provide a heightened level of control for your zoning applications, and are especially beneficial in large systems and those using variable speed.

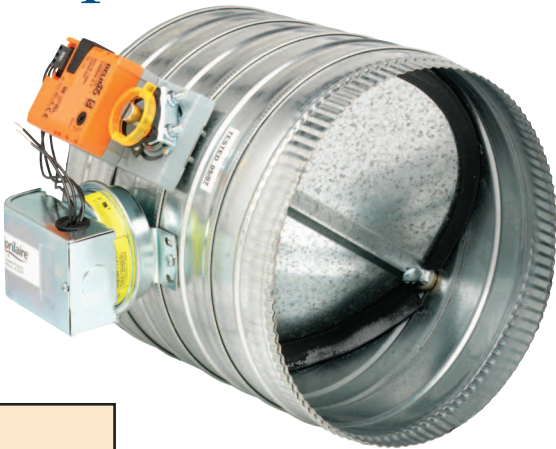
REPLACEMENT PARTS

- Model 6994- Motor for static pressure dampers
- Model 6995- Replacement pressure switch
- Model 6996- Tube and probe kit

Round Dampers Size & Stock No.	Nominal Diameter						
	8" (200mm)	10" (250mm)	12" (300mm)	14" (350mm)	16" (400mm)	18" (450mm)	20" (500mm)
Static pressure relief (power activated)	6208	6210	6212	6214	6216	6218	6220

PRODUCT FEATURES

- 24 VOLT MODULATING ACTUATOR
- SOLID STATE PRESSURE SENSOR
- ADJUSTABLE PRESSURE RANGE - 0.17 TO 2 INCHES
- PRESSURE ADJUSTMENT L.E.D.
- INTEGRATED NEOPRENE SEAL
- BLADE POSITION INDICATOR

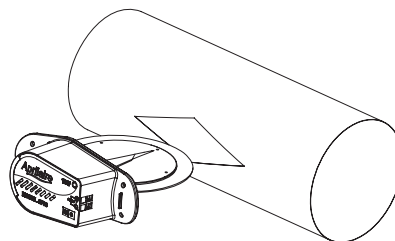


Retrofit Damper

Aprilaire® has broken open the service and replacement revenue stream for zoned comfort control with the first-ever, spring-return damper designed to be inserted in a six inch round branch duct.

Virtually every home without zoning has comfort problems. It is now affordable to zone these homes without costly, and sometimes impossible, duct modification.

By offering this simple solution, you provide your customers with true comfort throughout their home, better than operating constant fan or manually adjusting registers. You also assure your quality reputation with enhanced customer satisfaction through increased comfort and reliable, maintenance-free operation.



Model 6706

CONSUMER BENEFITS

COMFORT

- The temperature where and when they want it.

CONVENIENCE

- System is completely automatic. Add programmable thermostats or the Aprilaire Zoned Comfort Control system for the ultimate convenience and control.

ENERGY SAVINGS

- It makes sense; don't waste energy conditioning the whole home, only condition areas that need it. "Would you have a single light switch for you entire home?"

MODEL 6706 - DAMPER SPECIFICATIONS

DUCT SIZE	6" round
OVERALL SIZE	3.3"(H)x 8.0"(W)x 8.3"(D)
WEIGHT	1 lb.
POWER REQUIREMENT	10 VA @ 24 VAC
RESISTANCE	0.008" W.C. @ 700 fpm

CONTRACTOR BENEFITS

PROFITABLE

- You can now provide an economical solution to your customer's comfort needs securing more sales.

EASY INSTALLATION

- Simply cut a slot, insert the damper, and screw or strap the damper to the duct.

INSTALLER FRIENDLY

- High-resolution L.E.D. on the damper illuminates when closed, simplifying check-out and troubleshooting.

RELIABLE

- "No gears" technology assures long life.

FAIL SAFE

- Spring-open operation assures airflow and minimizes after-hour callbacks.

Model 8028 Power Distribution Panel

- Simplifies installation when the number of dampers exceeds the fuse rating of the control panel
- Makes troubleshooting easier
- Gives a professional and clean appearance to your installation

MODEL 8028 - POWER DISTRIBUTION PANEL SPECIFICATIONS

MAX. DAMPER POWER INPUT PER ZONE	100 VA @ 24 VAC
DAMPER FUSE SIZE	5 A fast acting (spare supplied)
CONTROL INPUT CURRENT DRAW (ZONE A & B)	50 mA @ 24 VAC
MAX. NO. OF APRILAIRE DAMPERS PER ZONE	10
MAX. WIRE SIZE	18 AWG
APPLICATION TEMPERATURE / RH	140°F / 90% RH (non-condensing)





Aprilaire Thermostats

Aprilaire® has a complete line of thermostats for all your applications, including those that utilize Zoned Comfort Control.

The process of selecting the correct thermostat for the application is largely the same for both single thermostats and zoning applications:

1. Determine if the application calls for a programmable or a non-programmable thermostat.
2. Determine what type of equipment you need to control and/or the requirements of the zone control panel you will be using.
3. Understand the features and capabilities that your customers need.

A good way to look at the selection process is by using a Good-Better-Best approach.



Best: The Model 8570 is truly the all-in-one thermostat for all types of applications. This model is field configurable for programmable or non-programmable operation and controls all types of heating and cooling equipment. It also offers a full array of advanced features to satisfy the needs of any of your customers.



Better: The 8300 Series has models available to suit your applications and are battery powered, so no extra wires are needed when changing out older thermostats. Advanced features such as air filter and water panel service monitors, adjustable calibration, and simplified programming make it a great choice for zoning or stand-alone applications.



Good: The 8200 Series provides good, basic control at an affordable price. This series is hardwired and requires a common connection ("C" terminal) so it is perfect for new construction or zoning applications where you can run the needed wires. All Aprilaire zone control panels provide a common connection ("C" terminal) for each zone thermostat.

8570 Thermostat

THE "ONE" THERMOSTAT

Whether the application is heat/cool or heat pump, single- or multi-stage, residential or light commercial, the Model 8570 is the thermostat to help build your business.

The Model 8570 thermostat provides exceptional value for you and your customers because it is easy to install, program, and operate.

Boasting a large, easy-to-read, vibrantly backlit display, this thermostat provides more "at-a-glance" information about the HVAC system, its accessories, and the indoor and outdoor environment than any other thermostat.

Plus, its menu-driven operation is so intuitive, both you and your customers will find it simple to program—even without the manual. It's that easy. No more nuisance callbacks.



Model 8570

CONSUMER BENEFITS

SIMPLEST PROGRAMMING AND OPERATION AVAILABLE

- Menu-driven approach results in the ultimate simplicity.

LARGE BACKLIT DISPLAY

- Convenient viewing at any light level.

EQUIPMENT MONITORS

- Informs the user when to change their air filter, service their humidifier or service their HVAC equipment. This results in greater comfort, maximum operating efficiency, long equipment life and a satisfied customer.

DISPLAYS OUTDOOR TEMPERATURE AND INDOOR RELATIVE HUMIDITY

- By means of connection to optional outdoor sensor or automatic humidifier control, the thermostat becomes your personal indoor environment center.

HOLIDAY FEATURE

- Allows the thermostat's program to be overridden until the date and time you select—whether you're away for hours, days or weeks.

PROGRESSIVE RECOVERY (SELECTABLE)

- Assures that the heating or cooling equipment starts at the optimum time to reach your chosen set point after an overnight set back.

PERMANENT PROGRAM MEMORY

- The program and all application settings are permanently stored even in the event of a power outage. Clock setting is maintained for five days, accounting for routine equipment service.

AUTOMATIC DAYLIGHT SAVINGS TIME ADJUSTMENT (SELECTABLE)

CONTRACTOR BENEFITS

THE "ONE" THERMOSTAT FOR YOUR BUSINESS

- Ideal for both residential and light commercial applications.
- Controls either single- or multi-stage equipment.
- Compatible with virtually all types of equipment – split system, rooftop, hydronic, heat pumps (including dual fuel), etc.
- Selectable operation: programmable or non-programmable.

CUSTOMER RETENTION

- Thermostat displays your name and phone number, assuring you get the call for service and replacement parts like air filters and humidifier water panels.

SIMPLEST PROGRAMMING AND OPERATION

- Reduces nuisance calls associated with old fashioned programmable thermostats.
- Intelligent installation options.
- Create intelligent solutions through connection to an Aprilaire automatic humidifier control or Model 6504 zone control panel.
- View or control other thermostats through the Model 6504.
- Extend blower operation for added humidification run time.
- Displays when the humidifier is operating.
- View outdoor temperature and indoor relative humidity.



8300 Series Thermostat

The 8300 Series thermostats provide exceptional value for you and your customers because they are easy to install, program and operate.

Programmable models are the easiest on the market—they even tell you when programming is “DONE.” Plus, they are delivered complete with pre-programmed Energy Star settings.

By offering and installing Aprilaire®—the most respected premium brand in the HVAC industry for over 60 years—you and your customers will enjoy maximum value, reliability, and easy operation, all of which have been proven in extensive field testing.

The 8300 Series integrate easily with other Aprilaire products by informing your customers when to replace their humidifier water panel and air filter, protecting your customer’s investments, and reminding them to call **you**.



Choose from these models to complete your quality installations:

- Model 8344** – Non-Programmable, Single-Stage Heat/Cool
- Model 8346** – Non-Programmable, Single-Stage Heat Pump w/Auxiliary Heat
- Model 8348** – Non-Programmable, Multi-Stage Heat/Cool
- Model 8363** – Programmable, Single-Stage Heat/Cool
- Model 8365** – Programmable, Single-Stage Heat Pump w/Auxiliary Heat
- Model 8368** – Programmable, Multi-Stage Heat/Cool

8300 Series

CONSUMER BENEFITS

LARGE BACKLIT DISPLAY

- Convenient viewing at any light level.

WATER PANEL CHANGE-INDICATOR ON THE DISPLAY

- Set it once at installation to remind homeowner when to contact you for replacement water panels.

FILTER CHANGE-INDICATOR ON THE DISPLAY

- Can be set for one, three, six, or twelve month change out period.

ADJUSTABLE FIELD OFFSETS

- Allows dealer to offset sensed temperature to match other temperature measuring devices.

SIMPLE TO PROGRAM

- Market-tested, simplified programming sequence.
- The inclusion of a “DONE” message at the end of a programming sequence.
- Operation and programming instructions located on thermostat cover.
- Simplified button labeling.
- Plain language and no cryptic icons.

CONTRACTOR BENEFITS

EASY INSTALLATION

- The unit is just the right size to cover existing thermostats.
- 45-degree angled terminals for easy wire termination.
- Can be mounted using the included drywall anchors or mounted to a two by four inch junction box
- Recessed back plate accommodates wire routing.
- Battery powered with low battery indication (batteries included).
- No need to pull extra wires.

IMPRINT YOUR COMPANY LOGO AND PHONE NUMBER

- Imprinting is a proven method of building your business.

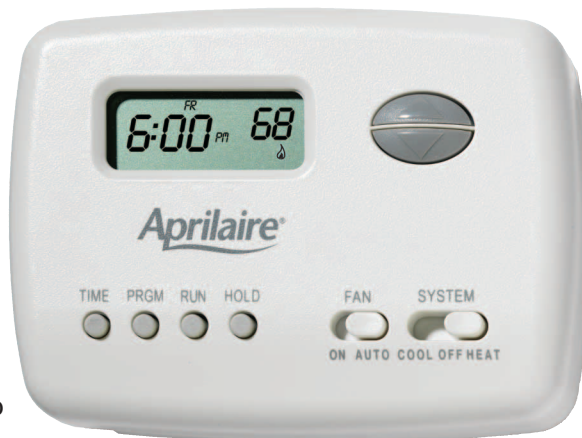


8200 Series Thermostat

The 8200 Series thermostats are ideal for volume installation settings where reliability and having all the basic features, and economy are a must.

Use the 8200 Series for both new construction and replacement installations with confidence. You are assured of compatibility with all equipment brands and there are models available for all types of systems. Your installers will benefit from the straight-forward, simple-to-wire and set-up design.

The 8200 Series provides precise temperature control, which leads to maximum satisfaction by the user. Your customers will also appreciate the subtle modern appearance and ease of use.



Choose from these models to complete your quality installations:

Model 8244 – Non-Programmable, Single-Stage Heat/Cool or Heat Pump (no auxiliary heat)

Model 8246 – Non-Programmable, Single-Stage Heat Pump w/Auxiliary Heat

Model 8263 – Programmable, Single-Stage Heat/Cool or Heat Pump (no auxiliary heat)

Model 8265 – Programmable, Single-Stage Heat Pump w/Auxiliary Heat

8200 Series

CONSUMER BENEFITS

EASY TO PROGRAM (MODELS 8263 & 8265)

- Energy-efficient set points are pre-programmed to simplify programming.

LARGE BACKLIT DISPLAY

- Assures readability and ease of use. All models are backlit for added convenience.

PROGRESSIVE RECOVERY (MODELS 8263 & 8265)

- Assures that the heating or cooling equipment starts at the optimum time to reach your chosen set point after set back.

SET POINTS DISPLAYED

- Eliminates manual operation at the thermostat to view settings.

PERMANENT HOLD

- Provides simple setback for vacations and other extended periods or when customers choose a single setting.

TEMPORARY HOLD

- Automatically returns to program settings after a temporary change, delivering convenience and comfort.

RESUMED COMFORT AFTER A POWER LOSS

- Programmed set points are permanently stored in memory for Models 8244 & 8263 (Models 8246 & 8265 with optional batteries installed).

CONTRACTOR BENEFITS

HARD WIRED, 24 VOLTS

- No call-backs due to battery issues.

ELECTRONIC ACCURACY

- Maintains +/- 1° differential from set point, assuring comfortable, satisfied customers.

FIELD CALIBRATION

- Provides the ability to offset the temperature sensed by the thermostat to match customer expectations.

RESET FUNCTION

- Return to factory settings at any time for a "fresh start" when setting up or programming.

SOFT TOUCH BUTTONS

- Provides a quality feel and additional customer satisfaction.

CYCLE RATE ADJUSTMENT

- Flexible thermostat operation to match the application requirements.

COMPRESSOR LOCKOUT PROTECTION

- Helps to assure the long life of the HVAC system.



Thermostat Accessories

Model 8051 Flush Mount Sensor

- Provides opportunity to remotely mount the thermostat out of view.
- May be painted or wallpapered to be virtually invisible.
- Attaches directly to the Model 8570 thermostat with two wire connection.
- Probe is 1.5" diameter. Friction fit in a one inch opening.



Model 8052 Outdoor/Duct Sensor

- Designed for outdoor or duct installation (including with zone control panels).
- Bracket can be removed to allow probe to be installed in radiant floor applications.
- Compatible with both residential and light commercial applications.
- **Probe dimensions:** 0.25" x 1.75" **Bracket dimensions:** 0.75" x 1.75"



Model 8053 Surface Mount Sensor

- Provides opportunity to remotely mount the thermostat out of view.
- Designed for indoor installation.
- Perfect for light commercial applications to prevent thermostat tampering.
- **Dimensions:** 2.5" x 3.5" x 0.875"



Model 8022 3-wire to 4-wire Adapter

Any two thermostat equipment terminals can be combined with the diode pair (not 24V hot or common) and wired to the Model 8022 through one wire avoiding the need to run new thermostat cable.

- Provides an extra wire without pulling new.
- Ideal for equipment upgrades (single- to multi-stage, etc.).
- Allows you to bypass a broken wire inside a wall.
- **Output:** 3.2A. **Dimensions:** 2.375" x 3.875" x 1.25"



Model 8023 Thermostat Adapter Plate

- Use to cover marks left on wall or wall paper when replacing thermostats.
- Matches color of Aprilaire thermostats.
- Pre-marked drilling holes simplify installation.
- **Dimensions:** 5.625" x 8" x 0.21875"



Model 8024 Universal Relay Pack

This relay card is a general purpose, 24-volt, three relay, dry contact, switching device. Each relay can be switched independently with the coils sharing a common leg.

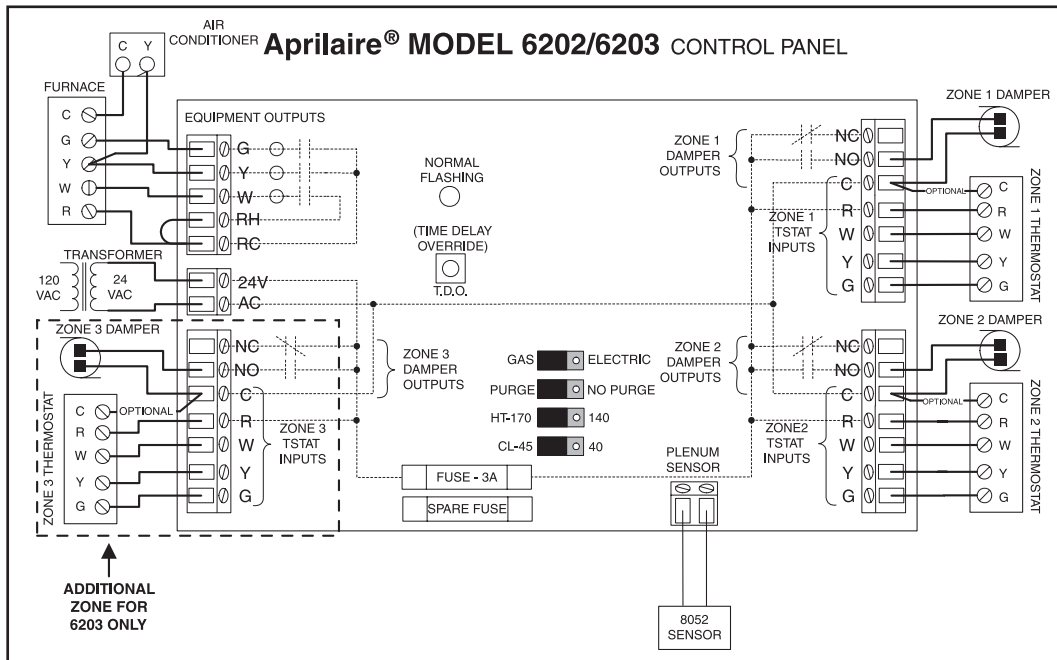
- **Input:** 24VAC +/-10%. **Output:** 24VAC; 2A (maximum).



Aprilaire Zoned Comfort Control Panel

Wiring Diagrams

APRILAIRE MODEL 6202 AND 6203 CONTROL PANELS



WIRING DIAGRAM Single-stage furnace and air conditioner application.

CONTROL PANEL TERMINAL DESIGNATIONS

R	24V (hot) Thermostat voltage	NC	Normally closed damper output
C	24V (com) T-stat (if required) & damper voltage	NO	Normally opened damper output
W	Heat (thermostats and equipment)	RH	Heating transformer—24V (hot)
Y	Cooling (thermostats and equipment)	RC	Cooling transformer—24V (hot)
G	Fan (thermostats and equipment)	24VAC	Voltage source for control panel, T-stats and dampers

PRODUCT SPECIFICATIONS

RATED VOLTAGE	20 to 30 VAC
RATED CURRENT	3 amp
FUSE RATING	3 amp, slow blow fuse
MAXIMUM AMBIENT TEMPERATURE	140°F
RH AND RC TERMINALS	Independent heat and cool relays for 2 transformer systems
PLENUM SENSOR	
HIGH LIMIT TEMPERATURE	Selectable between 120°F and 160°F
PLENUM SENSOR	
LOW LIMIT TEMPERATURE	Selectable between 40°F and 45°F

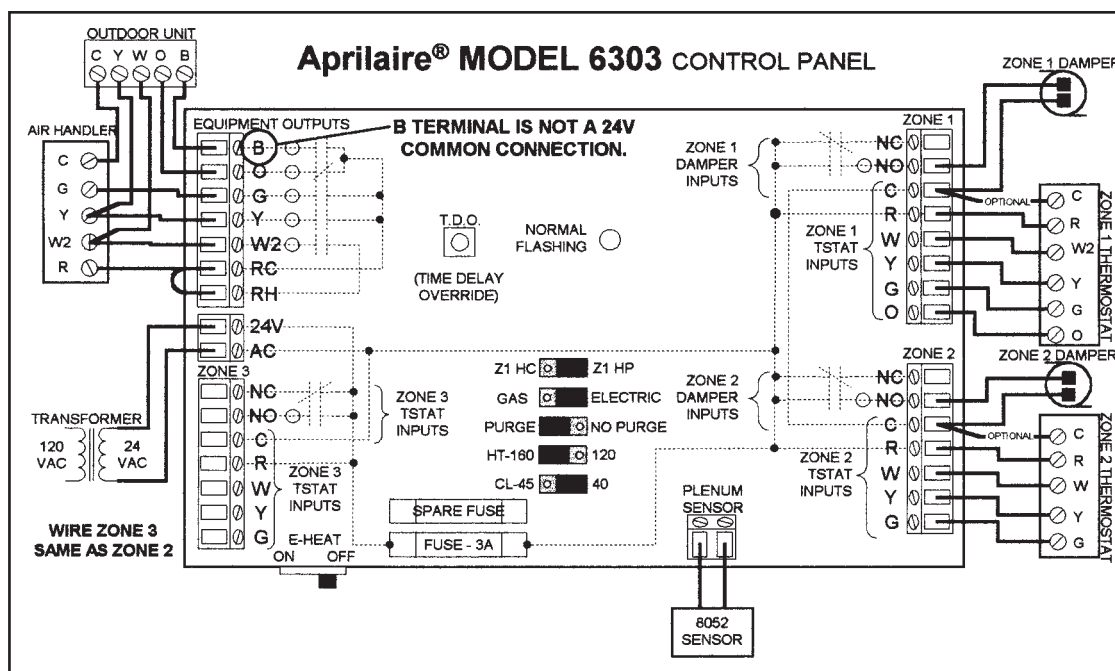
TRANSFORMER REQUIREMENTS

REQUIRED VA	MAX. # OF POWERED DAMPERS
40	3 or Less
75	4 thru 6
40 per 3 Dampers	7 or more

ADDITIONAL INSTALLATION FEATURES

- 45 DEGREE ANGLED TERMINALS
- ENCLOSURE ACCOMMODATES WIRING FROM THE SIDE OR REAR
- WIRING DIAGRAM ON FRONT COVER
- AVAILABLE TERMINAL FOR 24 VOLT POWERED STATS
- COMPATIBLE WITH COMMON POWER-STEALING THERMOSTATS

APRILAIRE MODEL 6303 CONTROL PANEL



WIRING DIAGRAM Single-stage heat pump with auxiliary heat application.

CONTROL PANEL TERMINAL DESIGNATIONS

R	24V (hot) Thermostat voltage	O	Reversing Valve—Cool
C	24V (com) T-stat (if required) & damper voltage	B	Reversing Valve—Heat
W/W2	Heat or Auxiliary Heat (thermostats and equipment)	NC	Normally closed damper output
Y	Cooling or Compressor (thermostats and equipment)	NO	Normally open damper output
G	Fan (thermostats and equipment)	RH	Heating transformer—24V (hot)
		RC	Cooling transformer—24V (hot)
		24VAC	Voltage source for control panel, T-stats and dampers

PRODUCT SPECIFICATIONS

RATED VOLTAGE	20 to 30 VAC
RATED CURRENT	3 amp
FUSE RATING	3 amp, slow blow fuse
MAXIMUM AMBIENT TEMPERATURE	140°F
RH AND RC TERMINALS	Independent heat and cool relays for 2 transformer systems
PLENUM SENSOR	
HIGH LIMIT TEMPERATURE	Selectable between 120°F and 160°F
PLENUM SENSOR	
LOW LIMIT TEMPERATURE	Selectable between 40°F and 45°F

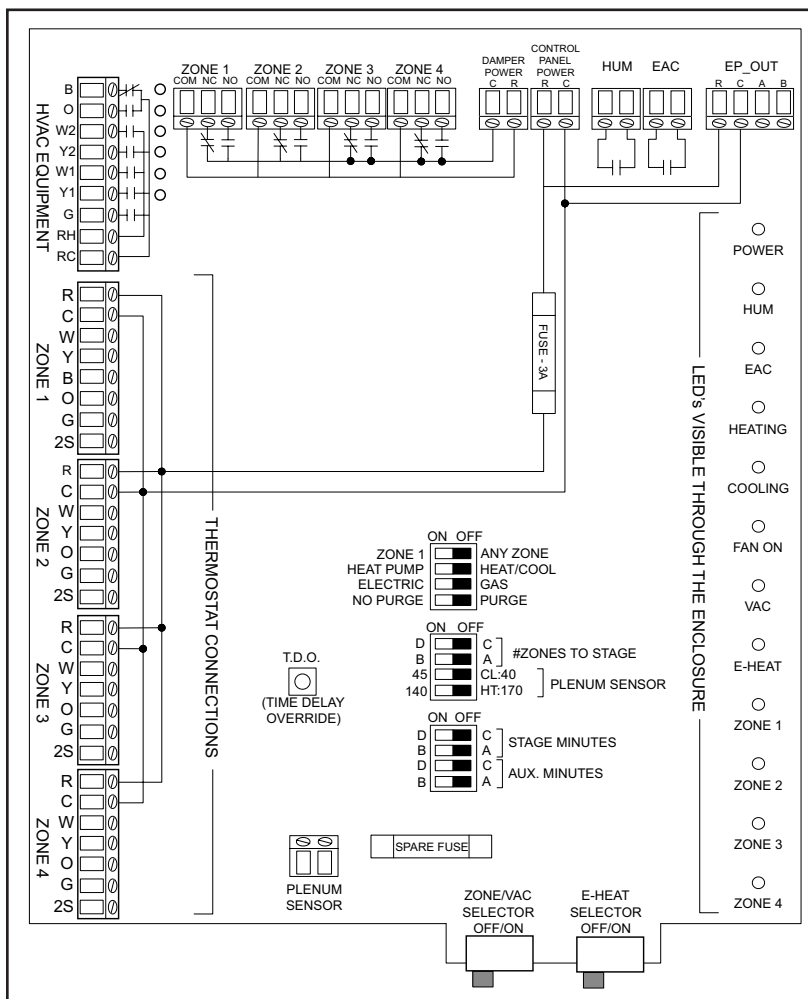
TRANSFORMER REQUIREMENTS

REQUIRED VA	MAX. # OF POWERED DAMPERS
40	3 or Less
75	4 thru 6
40 per 3 Dampers	7 or more

ADDITIONAL INSTALLATION FEATURES

- 45 DEGREE ANGLED TERMINALS
- ENCLOSURE ACCOMMODATES WIRING FROM THE SIDE OR REAR
- WIRING DIAGRAM ON FRONT COVER
- AVAILABLE COMMON TERMINAL FOR 24 VOLT POWERED STATS
- COMPATIBLE WITH POWER-STEALING THERMOSTATS
- FUSE PROTECTION WITH EXTRA FUSE ON BOARD
- CONVENIENT CONTROL OF EMERGENCY HEAT THROUGH THERMOSTAT OR ON BOARD SWITCH
- EMERGENCY HEAT LED INDICATION THROUGH CONTROL PANEL COVER

APRILAIRE MODEL 6404 CONTROL PANEL



CONTROL PANEL TERMINAL DESIGNATIONS

R	24V (hot) Thermostat voltage
C	24V (com) T-stat (if required) & damper voltage
G	Fan (thermostats and equipment)
Y/Y1	1 st Stage Cooling or Compressor (thermostats and equipment)
W/W1	1 st Stage Heat or Auxiliary Heat (thermostats and equipment)
Y2	2 nd Stage Cooling or Compressor (equipment)
W2	2 nd Stage Heat or Emergency Heat (equipment)
0	Reversing Valve—Cool
B	Reversing Valve—Heat
2S	2 nd Stage Heat and/or 2 nd Stage Cool (thermostats)
NC	Normally closed damper output
NO	Normally open damper output
24VAC	Voltage source for control panel, thermostats and dampers
RH	Heating transformer—24V (hot)
RC	Cooling transformer—24V (hot)
HUM	Auxiliary relay active w/ heat calls
EAC	Auxiliary relay active w/ blower operation
A&B	Expansion panel connections

PRODUCT SPECIFICATIONS

RATED VOLTAGE	20 to 30 VAC
RATED CURRENT	3 amp
FUSE RATING	3 amp, slow blow fuse
MAXIMUM AMBIENT TEMPERATURE	140°F
RH AND RC TERMINALS	Independent heat and cool relays for 2 transformer systems
PLENUM SENSOR	
HIGH LIMIT TEMPERATURE	Selectable between 140°F and 170°F
PLENUM SENSOR	
LOW LIMIT TEMPERATURE	Selectable between 40°F and 45°F

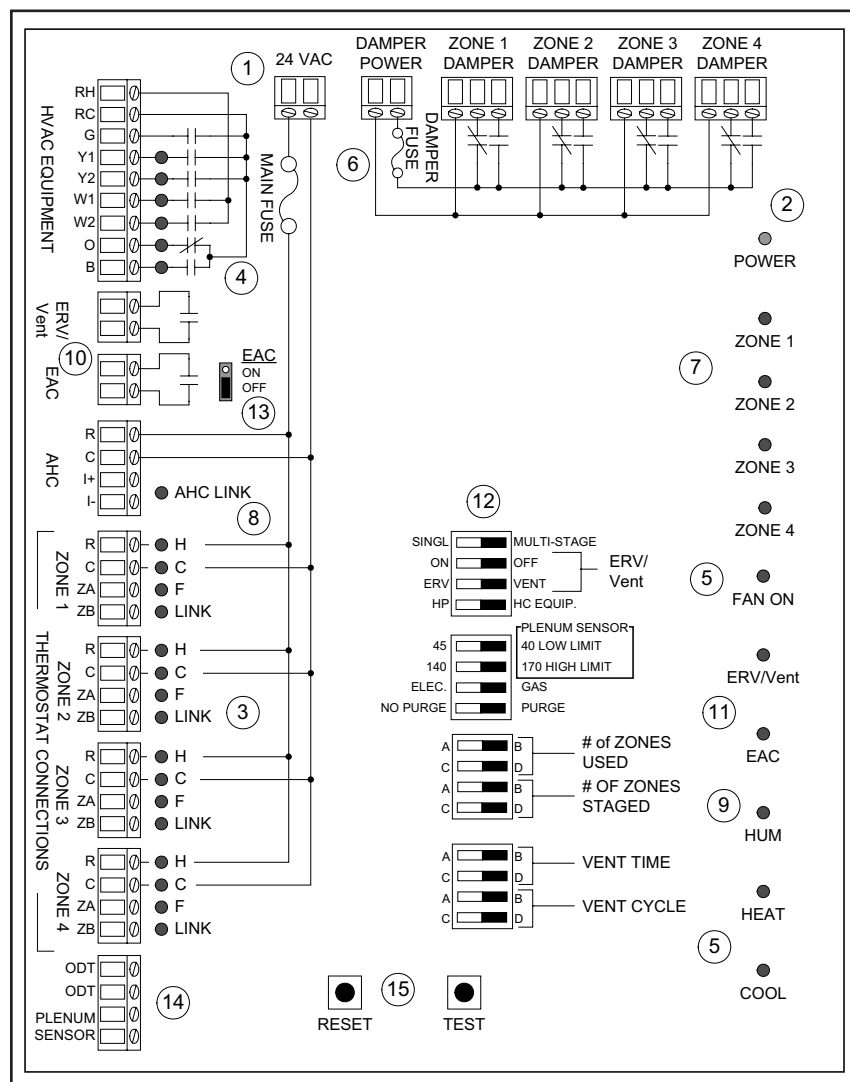
TRANSFORMER REQUIREMENTS

REQUIRED VA	MAX. # OF POWERED DAMPERS
40	3 or Less
75	4 thru 6
40 per 3 Dampers	7 or more

ADDITIONAL INSTALLATION FEATURES

- 45 DEGREE ANGLED TERMINALS
- ENCLOSURE ACCOMMODATES WIRING FROM THE SIDE OR REAR
- WIRING DIAGRAM ON FRONT COVER
- AVAILABLE COMMON TERMINAL FOR 24 VOLT POWERED STATS
- COMPATIBLE WITH POWER-STEALING THERMOSTATS
- FUSE PROTECTION WITH EXTRA FUSE
- CONVENIENT CONTROL OF EMERGENCY HEAT THROUGH THERMOSTAT OR ON BOARD SWITCH
- SELECTABLE - ANY ZONE SETS MODE OR ZONE ONE SETS MODE
- ELECTRIC/NON-ELECTRIC SELECTABLE - PROPER CONTROL OF THE FAN (G-TERMINAL) FOR EITHER ELECTRIC OR FOSSIL FUEL FURNACES

APRILAIRE MODEL 6504 CONTROL PANEL



CONTROL PANEL TERMINAL DESIGNATIONS

- (1) 24 VAC power input serves thermostat and AHC connection.
- (2) POWER L.E.D. light blinks at once per second with power applied unless put in Test Mode when it blinks twice per second.
- (3) Four sets of thermostat inputs. H(eat) L.E.D. lights when the thermostat when calls for heating, C(ool) L.E.D. lights when calling for cooling, F(an) L.E.D. lights when calling for continuous fan and the LINK L.E.D. is the lit continuously when a thermostat is connected.
- (4) L.E.D.s for all HVAC Equipment outputs.
- (5) Visible (with the cover on) L.E.D.s to indicate when the system is Heating, Cooling and operating the Fan.
- (6) Separate power input for 2- or 3-wire dampers
- (7) ZONE L.E.D.s light when the Normally Open (NO) contact is closed.
- (8) Automatic Humidifier Control connections; LINK L.E.D. lights when the AHC is communicating to the control panel.
- (9) HUM LED lights when the Humidifier valve is on.
- (10) Outputs for ERV/Ventilation and Electronic Air Cleaner (EAC) control.
- (11) LED indicates when ERV/Vent or EAC relay is closed.
- (12) Dip switch setting to configure HVAC outputs, activates/deactivates ERV/Vent outputs and set period and frequency for ventilation control.
- (13) Jumper to turn on/off EAC control.
- (14) Inputs for outdoor temperature sensor and plenum temperature sensor.
- (15) Test button for automatic test sequence. Reset button momentarily breaks power to control panel microcontroller.

PRODUCT SPECIFICATIONS

RATED VOLTAGE	20 to 30 VAC
RATED CURRENT	3 amp
FUSE RATING	3 amp, slow blow fuse
MAXIMUM AMBIENT TEMPERATURE	140°F
RH AND RC TERMINALS	Independent heat and cool relays for 2 transformer systems
PLENUM SENSOR	
HIGH LIMIT TEMPERATURE	Selectable between 140°F and 170°F
PLENUM SENSOR	
LOW LIMIT TEMPERATURE	Selectable between 40°F and 45°F

ADDITIONAL INSTALLATION FEATURES

- 45 DEGREE ANGLED TERMINALS
- ENCLOSURE ACCOMMODATES WIRING FROM THE SIDE OR REAR
- WIRING DIAGRAM ON FRONT COVER
- FUSE PROTECTION WITH EXTRA FUSE

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The top-notch Aprilaire technical support staff is available from 7:00 a.m. through 5:00 p.m. Central Standard Time to assist you with any product or application questions you may have.

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A full library of product literature, installation instructions, and technical documents is available 24/7 for your convenience. Download what you need or place an order for literature right on-line.

Local District Sales Manager

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