

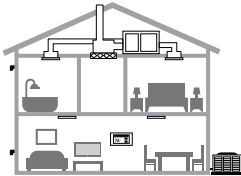
## QUICK START

Congratulations on the purchase of your new home. Blue Mountain Construction Services has worked with your homebuilder to install a heating, ventilation, and air conditioning (HVAC) system to keep your home comfortable year round.

Here are a few simple steps that you can do to start enjoying this system right away.

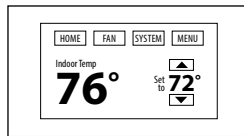
### 1. Locate

Locate the different components of your home's HVAC system, especially the thermostat, filters, registers, outside air power switch and condensate lines. Be sure that they appear clean and free of damage.



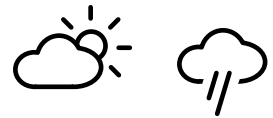
### 2. Set Thermostat

On your thermostat set the fan to "Auto", the system to "Heat" or "Cool", and enter a temperature that you would like the home to be. It can hold this temperature until you program it for your regular daily routine using the thermostat's manual.



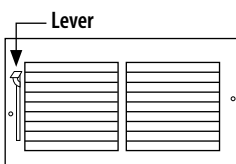
### 3. Outside Conditions

Depending on outside conditions open and close windows and window coverings to increase comfort and minimize HVAC system run times.



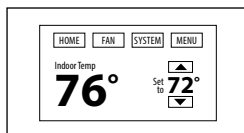
### 4. Airflow

If more or less air flow is needed in a room you can adjust the louvers on the register with the lever on its side. Some registers, without a lever, are not adjustable.



### 5. Program System

Once you are settled in your home you can program the system to vary the temperature based on your schedule. Settings for "Sleep, Wake, Away, and Home" can typically be scheduled. See page 4 for programming tips.



### 6. Air Filter

Be sure to change the air filter(s) every three to six months as dust builds up. Not doing so will shorten the life span of your HVAC system and increase utility bills unnecessarily.



## SYSTEM EXPECTATIONS

Your HVAC system was designed to maintain a comfortable temperature under normal weather conditions for the geographic area your home was built. Heat waves and cold snaps may exceed the system's capability to maintain temperature. In the summer, the system can be expected to maintain an indoor temperature of 75-78 degrees. When cooling the home, the system can only lower the temperature of the air 1-2 degrees an hour, so it is better to set and maintain a comfortable temperature instead of letting the home get warm and then turning the system on. Keep in mind, the HVAC system was designed to only heat and cool the air. If the system is left off during the daytime in the summer and then turned on – it then has to cool the furniture, appliances, and surfaces inside the home; in addition to the air. In the winter, the system can be expected to maintain an indoor temperature of 65-68 degrees. As with cooling, it is better to set and maintain a comfortable temperature instead of letting the house get cold and then turning the system on.

To help maintain a comfortable temperature it is critical to install and use window coverings to insulate the home. The sun shining through a window on to the floor or furniture will increase the temperature in the room significantly. Conversely cold or windy outdoor weather can be felt through the glass of an uncovered window.

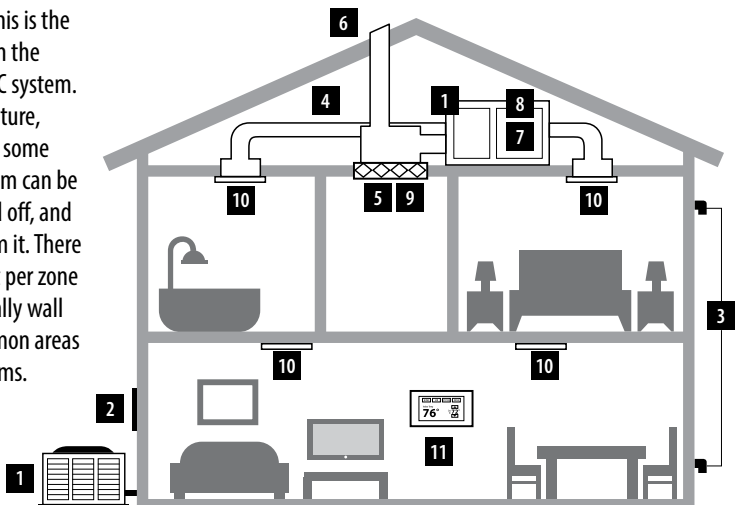
Some room-to-room variance in temperature is to be expected in your home. Rooms with different window area, exterior walls, ceiling heights, floor levels or outside shade will put a different demand on the HVAC system. You can adjust for this by slightly opening or closing the air supply levers on the registers in each room, thereby adjusting air flow into the rooms that need it most.

## HVAC TERMS

- 1. Air conditioner / heat pump** – Air conditioner, the mechanical component responsible for cooling air. It has two components connected by refrigeration lines; a compressor with a coil outside of the home and a cooling coil mounted, typically, in the attic. Heat pumps also provide cooling but use the same refrigeration lines (flowing in reverse) to create heat for your home. Heat pumps have a defrost cycle that regularly happens during heating mode, usually at night time when the outside temperature is the coldest. This normal process looks like steam coming out of the outside unit.
- 2. Circuit breakers or disconnects** – These safety devices are responsible for interrupting the flow of electricity to your HVAC equipment if a problem occurs or if maintenance is required. You can find an electrical disconnect next to the air conditioner or heat pump outside of your home and circuit breakers for your furnace, fan coil, heat pump, and/or air conditioner are located in the main electrical panel for the home. Neither of these should need to be interacted with under normal circumstances. If a circuit breaker does trip, it should be turned completely off and then back on again. If this happens often it may indicate a problem with the system. The electrical disconnect located in a box near the outdoor air conditioner compressor should only be used when the unit is being serviced or in the event of an electrical emergency.
- 3. Condensate line(s)** – This is typically a plastic pipe that exits the home and provides a drain for water that collects on the cooling coils during air conditioning and from most currently available furnaces during heating. There are normally two condensate lines, one (primary) down low (near the ground) which may have water running out of it during use and one (secondary) higher up, usually above a window to make it more visible. The primary line may also be connected to the waste line to the sewer and not visible. The secondary line above the window should not have water coming out of it unless there is an issue with the primary line. Contact your builder and/or Blue Mountain immediately if this occurs. If you see water coming from the secondary pipe, this is a warning that the primary drain is clogged and service is required ASAP. Without servicing the drain, water damage starting in the attic is likely to occur.

4. **Duct work** – This is flexible or rigid passageways for air to move through as it travels between the living space and the heating/cooling equipment. Ductwork can be found in the attic, in between floors, and inside wall spaces.
5. **Filter** – The filter plays the critical role of keeping dust and debris out of the system components and from being circulated around the living space. Filters should be replaced every three to six months. Replacements should always match the size, thickness, and MERV rating of those originally installed.
6. **Fresh air intake** – Some homes are equipped with a small air inlet that allows fresh air to be pulled from outside of the home and mixed with air moving to the living space. Fresh air helps improve indoor air quality and the filter can usually be found inside of the main return or up in the attic.
7. **Furnace** – The mechanical component responsible for heating and circulating air in the home. It is typically located in the attic or a closet and requires electrical power and uses natural gas to burn for heat. Exhaust fumes are vented through the roof.
8. **Fan Coil** – When coupled with a heat pump outside, the two provide heating and cooling to the living space using only electricity. The fan coil sits in the same locations as the furnace and the ductwork connects to the fan coil. Depending on the load calculations and system sizing, the designer may have determined that auxiliary heat is needed. This is provided with electric resistance heating to make up the difference in the heating requirements and capabilities of the system. It is normal for a heat pump / fan coil system to take longer to heat the conditioned space. This is normal and should be expected or planned for when using this system type.
9. **Return** – The location at which air is pulled from the living space and ducted into the furnace or fan coil. This is usually covered by a grill mounted in a common area and can be in the ceiling or low on a wall. This is the location for the air filter and often times the optional fresh air intake filter.
10. **Register** – This is usually a ceiling or floor mounted grate that covers the duct work where conditioned air enters the living space. Each room usually has one or more registers, however smaller rooms may not have them. These often have levers that can be adjusted to vary the air flow seasonally through the register. Please note some registers are not meant to be adjusted. These do not have levers.

11. **Thermostat** – This is the interface between the user and the HVAC system. It senses temperature, and occupancy in some models. The system can be turned on, turned off, and programmed from it. There is one thermostat per zone and they are usually wall mounted in common areas or master bedrooms.



## THERMOSTAT OPERATION

Your thermostat(s) have three primary functions – sense the temperature in the room, activate the system when called for, and allow users to interact with their HVAC system. It can either be turned on and off as needed, or it can be programmed to come on automatically at preset times according to your schedule. New optional Wi-Fi enabled smart thermostats can also be controlled from apps running on smart phones or tablets.

For more information about programming your thermostat consult its owner's manual. Additional information can be found on these manufacturers' websites.



**Honeywell Home**

[www.honeywellhome.com/us/en/support](http://www.honeywellhome.com/us/en/support)



**Nest**

[nest.com/support/thermostat](http://nest.com/support/thermostat)

**“Through proper use of pre-programmed settings, a programmable thermostat can save you about \$180 every year in energy costs.” — [www.energystar.gov](http://www.energystar.gov)**

Smart thermostats can also track your occupancy and schedule and will adapt to best meet your comfort needs. Thermostats with this capability may pre-heat or pre-cool your home prior to your arrival or request for a temperature change.

**Homeowners can set temperatures to their preference but this will have an impact on utility bills. Moderate settings will keep expenses lower.**

For cooling, a temperature of 78 degrees is recommended during the summer.  
For heating, a temperature of 68 degrees is recommended during the winter.

# FILTER CHANGES

Just like a car, your HVAC system needs regular maintenance. One of the most important things you can do is change your HVAC systems filter(s) on a regular basis. Filters keep dust and debris from entering the system and from circulating around the house. Your system may have multiple filters at these locations:

- Main return – usually located in a hallway or common room
- Fresh air (if applicable) – usually mounted behind the main return filter or in the attic
- Secondary return – usually found in a master bedroom

These filters should be changed every three to six months to prevent restricted air flow. Keeping clean filters in the system has many benefits including:

- Less dust in the air
- Longer life for your HVAC equipment
- Lower energy bills

When replacing the filter:

- Turn the system off
- Open the grate at the return (usually by turning some small latches)
- Remove and discard the old filter or filters (noting the air flow direction)
- Install new clean filters (matching length and width as well as thickness and MERV rating) and close the grate
- Turn the system back on



Typical replacement filters are available at most hardware or home improvement stores or on-line. Be sure your replacement filters are the same physical size and MERV rating as what was originally installed and are mounted with the same air flow direction as the original, usually indicated with an arrow on the filter.

If the system uses specialized filters, it may need to be ordered from the manufacturer or Blue Mountain. High efficiency replacement air filters are available, but caution needs to be used when selecting them. Air filters are rated with a MERV number (Minimum Efficiency Reporting Value). This standard rates the filter's overall effectiveness. A higher value means finer filtration and fewer dust particles passing through it. However, if a filter with a higher MERV rating is installed as a replacement, it also means the system needs to work harder to pull air through the filter and that the filter will need to be changed more often. The less air flowing, the longer it will take to heat or cool the home, and your energy bill will likely be impacted. Always use a filter with the MERV rating specified by the designer/installer of the system. As of 2023 this can be as high as MERV 16 or higher.

## PRE-SEASON SYSTEM CHECK

Taking your HVAC system for a “test drive” prior to each season is a great idea and can prevent discomfort. Each April set the system to “cool” and confirm that cool air is coming out of the registers. Each September set the system to “heat” and make sure warm air is coming out of the registers. A smoky smell is to be expected at the first running of the heater as dust is being burned off, this should stop in 15-30 minutes. You may want to open windows to air the house out during the pre-season check.

By testing the system before it is needed you can be sure your home will be comfortable when the weather changes. Also, if there is a problem, you can beat the rush for a technician to come out and service the system before they get busy with other calls.

**“Having the most energy-efficient system ever built won’t matter much if it’s not maintained. Lack of maintenance is the number one killer of HVAC systems. Before each cooling season, it’s recommended that your system get a professional tune-up.”**

— [www.homeadvisor.com](http://www.homeadvisor.com)

## QUICK CHECK GUIDE

Some issues with the system can be addressed by the homeowner, keeping the home comfortable instead of waiting for a service technician. If you run into a problem try these simple solutions:

Problem	Solutions
No heat	Check that the thermostat is set to “Heat” and the target temperature is higher than the displayed room temperature Check the circuit breakers and reset if necessary
No cool air	Check that the thermostat is set to “Cool” and the target temperature is lower than the displayed room temperature Check the circuit breakers and reset if necessary
No airflow to rooms	Check the register lever in the room and adjust if necessary Check the air filters to be sure they are not dirty
Smoky smell from vents	It is not uncommon for the heater to burn off a layer of dust the first time it is started up each season
Water dripping from drain line	Water dripping from the primary condensate line (lower) is normal Water dripping from the secondary line (higher) should be investigated as soon as possible

## FAQ

### **Q: Where is my filter and how often should I change it?**

A: You may have multiple filters in your home. A main return filter should be located in a common area, possibly in a ceiling hallway or a main room lower wall. Behind that there may be a fresh air filter for incoming outside air. Finally, you may have a secondary return in the master bedroom. All of the filters should be changed every three to six months to keep your HVAC system running optimally.

### **Q: Why do I have two pipes sticking out of my house that drip water?**

A: These pipes are condensate drip lines that run up to the system in your attic. It is common for the primary drain, the lower one, to drip water when cooling your home as moisture condenses from the air going through the AC coils. It may also drip during heating. This is normal. On some homes the primary line is connected to the waste line going to the sewer and not visible. However, if you see water dripping from the higher drip line(s) it could mean a problem and should be investigated as soon as possible. It is possible that the primary drip line is clogged.

### **Q: Why does my system sometimes run and the air coming out doesn't seem warmer or colder than the rest of the air in the house?**

A: This can happen for a few reasons. If the fan setting is turned on, air from one part of the house is circulated to another part, this is common with multiple zone systems. Also, some modern HVAC systems are designed to bring small amounts of fresh air into homes to improve indoor air quality. Additionally, an included energy feature is to extract all of the heating or cooling charged in to the system, even when the AC or furnace has stopped.

### **Q: Where is my furnace and is it gas or electric?**

A: The majority of furnaces are located in the attics of homes and use a combination of natural gas and electricity. The gas is burned to warm air passing through the furnace. Electricity is used to power the circuitry and the blower motor that moves the air from the return through the furnace and then out to the registers in each room.

### **Q: If I have the same floorplan as my neighbor, why is my home not the same temperature as theirs?**

A: Your home's temperatures will vary based on many factors, including orientation to the sun, use of window coverings, flooring differences (ex: carpet vs. tile), the number of occupants, the number and type of electrical appliances, and more. Each home is unique so set your comfort system accordingly.

### **Q: Why is my upstairs a different temperature than the rest of the house?**

A: It is a law of physics that hot air rises. When trying to heat the downstairs the warm air will want to move upstairs. Also when trying to cool the upstairs the cool air will sink to the lower parts of the home. It may be necessary to adjust the air flow to certain rooms by opening or closing the registers in those rooms during different seasons.

### **Q: Why is my thermostat heating or cooling my house before it is set to?**

A: Today's smart thermostats can track trends, sense occupancy of the home, and anticipate comfort demands. A thermostat that repeatedly sees a need for heating or cooling a home at a given time, or if it sees a repeatedly long run time to reach a set temperature will begin pre-heating or pre-cooling a home prior to a set schedule. If you wish, this is a setting you can turn off.

# HEAT RECOVERY VENTILATOR AND ENERGY RECOVERY VENTILATOR

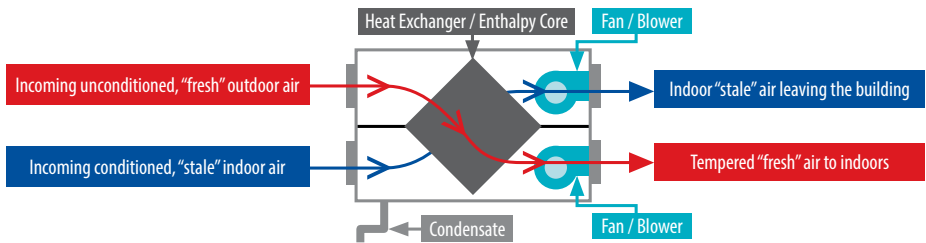
Some newly constructed homes include a Heat Recovery Ventilator (HRV) or an Energy Recovery Ventilator (ERV) to improve indoor air quality through forced ventilation. These fresh air appliances are typically not connected to your HVAC system. They simultaneously pull fresh air in from the outside, and move stale air from the inside, out.

You can tell the systems apart by their connection of a drain line:

- HRV – condensate line connected
- ERV – no condensate line

These units require the following maintenance, either by the homeowner or by service technician – available through the Blue Mountain ESSA program:

- Annual core cleaning
- Filter replacement



**Blue Mountain**  
Construction Services, Inc.

707 Aldridge Road, Vacaville, CA 95688

[www.bluemountainair.net](http://www.bluemountainair.net)

## CORPORATE

Tel **707.451.8111**

Email [info@bluemountaininc.net](mailto:info@bluemountaininc.net)

## SERVICE

Tel **800.889.2085**

Email [servicedept@bluemountaininc.net](mailto:servicedept@bluemountaininc.net)

CCL: 398668

**"Maintain your equipment to prevent future problems and unwanted costs. Keep your cooling and heating system at peak performance by having a contractor do annual pre-season check-ups."**  
— [www.energystar.gov](http://www.energystar.gov)