

Heat Pump Frequently Asked Questions

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HEAT PUMP OUTDOOR UNIT ICED-UP DURING COLD WEATHER:

It is normal for a heat pump to have a build up of white frost on the outside coil during cold damp weather. The build up can completely cover the outdoor unit. If you have a heavy build up clear ice, you probably need to call for service. A heat pump will change to defrost mode automatically every 30-90 minutes depending on how the unit is set-up. However, unless you are watching the outdoor unit when it defrosts, you may never notice that it has defrosted, because it will begin to frost up again as soon as it changes back to heating mode.

A heat pump that is not defrosting normally is more expensive to operate and extended operation with a heavy build up of ice could possibly damage the unit.

Some conditions that can make icing worse can include, rain dripping from the roof directly into the outdoor unit, dirty coils, coils covered with leaves, grass, etc...

If water is dripping from the roof into the outdoor unit, this will cause the unit to ice up more than normal and maybe even to the point, it can not remove all the ice during the defrost cycle. To help reduce this, a simple piece of metal can be added to the second row of shingles that is about 2 feet wider than the unit and it will force the water to drain to each side of the metal strip and miss the outdoor unit. Gutters will also eliminate this problem.

Never cover your outdoor unit with anything in an attempt to keep moisture out as this will only reduce air flow and make the situation worse. You could also cause permanent damage to your unit.

Never remove the ice with a sharp object. The refrigerant coils can be damaged very easily, and it could result in great bodily harm, even death.

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HEAT PUMP OR AIR CONDITIONER ICED-UP IN SUMMER:

It is never normal to see ice in the summer anywhere on a heat pump or central air conditioner. This includes the indoor unit, outdoor unit and interconnecting line-set. It is possible to ice-up the indoor coil however, if the air conditioner is running in very cold weather or if the thermostat is turned down extremely low.

We recommend never turning the thermostat below 70 degrees. If air conditioning is needed during winter months, such as for restaurants or businesses, then a "Low ambient kit" is required and can be installed by a service technician.

If you see ice on a heat pump or air conditioner in the summer there most likely is a problem and you should call for service.

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THE FAN ON THE OUTDOOR UNIT IS NOT TURNING BUT THE UNIT SOUNDS LIKE IT IS TRYING TO RUN:

If the system is defrosting, the outdoor fan will stop running and the compressor will continue to run (making a buzzing or humming sound). The compressor is actually circulating hot refrigerant through the outdoor unit to melt the ice off the system. After a few minutes, the system will complete the defrost cycle, you will hear the "whooshing" or "air brake" sound, the fan will restart, and steam will blow out the top of the unit.

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*** HEAT PUMP NEVER QUITE REACHES TEMPERATURE:**

In other words, if you set your thermostat for 71 degrees in the winter and your house only seems to get up to 69 degrees. This problem generates many service calls. And sometimes this is caused by a genuine problem but unfortunately, in extremely, cold weather even a properly working heat pump may have trouble maintaining desired temperature.

Why is this? When it gets below a certain temperature, in our area around 35 degrees a heat pump loses efficiency and cannot keep up with the heat loss of the structure. When the temperature in the house drops approximately 2 degrees below room temperature, supplemental heat comes on to assist the heat pump (usually in the form of electric resistance heaters). When it gets to within 1.5 degrees of room temperature, the back-up heat cycles off and the heat pump continues running trying to reach temperature but cannot. This usually happens when the temperature is at it's coldest - 0 to 30 degrees.

This is however the way heat pumps were designed to operate. Even though they don't put a lot of heat into the house and they run for long periods of time, they are still quite efficient.

So, if it is very cold out and you desire your house to be a certain temperature, you might have to raise your thermostat by 2 degrees to maintain it. Now, if it isn't extremely cold out and your

heat pump isn't maintaining temperature, this indicates a problem.

Make sure your outdoor heat pump is actually running and that it's not just cycling on the back-up heat. If your outdoor heat pump isn't running, check the following:

- Make sure no Emergency switches are turned off (including the furnace switch)
- Make sure the breakers for the indoor and outdoor equipment are in the "on" position- reset if necessary
- Make sure the outdoor disconnect is on- some have internal fuses or circuit breakers- if you know how to check fuses you may do so
- If you have a condensate pump with a safety switch, check to see if the pump is completely full of water- If so, make sure pump is plugged-in and hose isn't clogged (could be a bad pump)
- If your outdoor unit has a "Reset Button" press it- if that was the problem and you have to press it a second time, there is a problem and a service call will be needed
- Your unit could have a safety device locking it out. Reset it by turning system off at thermostat or breaker, wait 1 minute and turn back on. Wait up to 10 minutes to see if outdoor unit starts

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I HAVE STEAM/SMOKE COMING OUT OF MY OUTDOOR UNIT:

This is a normal occurrence when the heat pump is defrosting during cold weather. It is normal for a heat pump to build up a layer of frost (WHITE ICE or SNOW) during cold damp weather. This build up of frost is automatically removed by the defrost cycle built into the heat pump. While the unit is defrosting, it is possible to see a cloud of steam/fog rising from the unit. You should not be alarmed. The steam/fog will quit within a few minutes after the fan on top restarts.

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WHAT IS AUXILIARY HEAT:

Auxiliary heat is the technical term for "heat strips". Most heat pumps have heat strips inside the air handler to compensate for the cold air produced when the heat pump goes into the "defrost cycle". During the defrost cycle, the heat pump reverses. It circulates cold refrigerant through the inside coil and hot refrigerant through the outside coil to melt the ice off the outside coil. During this time, without heat strips, cold air would be blown into the home. The heat strips also sometimes referred to as "backup heat", supplement the heat produced by the heat pump to assist during extreme cold weather.

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MY AUXILIARY HEAT LIGHT KEEPS COMING ON:

This can sometimes be normal, or it sometimes can indicate a possible problem. Not all heat pump thermostats have an auxiliary heat indicator light, but most conventional heat pumps have auxiliary heat built-in.

It is normal for your auxiliary heat light to come on during very cold weather. Under these conditions, the light is just letting you know that the auxiliary heat is being used along with the heat pump to maintain the desired temperature in your home. This is normal.

If the auxiliary light is coming on during relatively mild weather (above 40-50 degrees) and the wind outside is not blowing, you may have a problem with your heat pump. If this is the case, you may even notice that the heat pump is running more than usual on mild days. The best course of action would be to have your heat pump checked by a qualified technician.

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*** MY HEAT PUMP RUNS A LOT:**

There are several conditions that could exist:

First, if your heat pump is running a lot during very cold weather this is normal for a properly installed heat pump. In fact, many heat pumps may run continuously during bitterly cold weather. Believe it or not, a properly sized and installed heat pump should run almost continuously when it is below 30 degrees or so.

Second, pay attention to how your heat pump operates during mild weather. If your heat pump is running continuously or if it is running more than normal on mild days when the wind is not blowing, chances are, you need to call for professional service.

Also, check to see if the fan switch on your thermostat is set to "ON". If the fan switch is set to "ON" the fan will never stop running. This is used to circulate air on mild days or to continuously filter the air inside your home. If you want the fan to run only when there is a need for A/C or Heat, set your thermostat to "AUTO".

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HEAT PUMP NEVER SHUTS OFF, RUNS ALL THE TIME:

If you are experiencing this problem in the cooling mode during the summer, you should probably call for service. This is mostly a winter-time heating complaint.

Just like the complaint of the heat pump blowing cold air, sometimes the customer just thinks it runs all the time because they aren't used to a heat pump and how they work. In extremely cold weather, a properly working heat pump will run almost continuously. That is the way they were designed to work.

Now, if it isn't extremely cold and suddenly your heat pump just seems to run all the time, this

indicates a problem and you should call a service technician.

But, first check to see if the fan switch on your thermostat is set to "ON". If the fan switch is set to "ON" the fan will never stop running. This is used to circulate air on mild days or to continuously filter the air inside your home. If you want the fan to run only when there is a need for A/C or Heat, set your thermostat to "AUTO".

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*** MY HEAT PUMP BLOWS COLD AIR SOMETIMES:**

This is our number one complaint with conventional electric heat pumps. It is a fact that the air temperature that comes from your registers can vary a lot with a conventional electric heat pump installed in our climate.

The fact is, sometimes a conventional heat pump delivers heated air that is actually cooler than your body temperature. If moving air that is less than your body temperature strikes you while you're warm, it tends to feel cold, when in fact, it could be several degrees warmer than the room temperature. Make sure to locate furniture so that you do not get a direct draft from the registers.

It is normal for a heat pump to only deliver air that is only 10 degrees warmer than the room temperature at times. If you are periodically getting a very cold blast of air that only lasts a few minutes, you could possibly have a problem with your heat pumps defrost controls. If you have a thermometer, place it at one of your supply registers. You should not get alarmed if you frequently see supply temperatures only slightly above room temperature during cold weather (below 25 degrees outside). If you are periodically getting blasts of air that are much colder than the room temperature (in the order of 10-15 degrees colder), you probably should have your heat pump checked by a qualified technician.

Also check to see if the fan switch on your thermostat is set to "ON". If the fan switch is set to "ON" the fan will never stop running. This is used to circulate air on mild days or to continuously filter the air inside your home. If you want the fan to run only when there is a need for A/C or Heat, set your thermostat to "AUTO".

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OUTDOOR UNIT MAKES STRANGE/LOUD NOISES:

Heat pumps do tend to make strange and/or loud noises at times, more so in the winter. Heat pumps have reversing valves that reverse the flow of refrigerant between the heating and cooling modes. During the winter, whenever the heat pump goes into the defrost mode, this valve shifts. Along with that is a "whooshing sound" or an "air brake" sound that trucks make, which usually lasts for a couple of seconds. After that, the compressor sometimes sounds much louder than usual, almost a "tinny sound". After shutdown the refrigerant pressures equalize, during this period sometimes sounds are heard but this is normal.

Another common loud sound is when the outdoor unit starts up or shuts off. Specifically, the newer "Scroll" type compressors. They make a "back peddling type of noise on shutdown and on start-up they sometimes sound like an "out of balanced washing machine".

Sometimes customers complain of a buzzing noise from the outdoor unit when it's not even running. This is usually the reversing valve solenoid coil. It's low voltage (24 volts) so it isn't really wasting energy and sometimes they can be heard. Sometimes a buzzing sound can also be heard when the outdoor unit is in defrost mode.

If you are hearing a very loud "metal hitting metal type sound", the fan blade could be hitting something, possibly ice, or a wire, or tubing. Shut the unit off immediately. This almost always ruins the fan blades and possibly the motor as well. If a piece of copper tubing shifted and is being hit by the blades, they could put a hole in it causing the refrigerant to leak out.

Then there is always the vibration noise, which sounds simple but can be the most difficult to eliminate. Sometimes it is just a matter of installing rubber isolation pads under the unit. Sometimes the refrigerant piping is strapped too tightly to the floor joists. Sometimes it is in the unit itself and cannot be eliminated.

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OUTDOOR UNIT RUNNING BUT INDOOR FAN IS NOT:

This is most likely a problem. Check to be sure your breaker for the indoor air handler is not tripped and lastly, switch the fan setting on your thermostat to "ON" to see if that makes fan come on. If the fan does not come on, turn the thermostat main setting or mode to "OFF", then call us for a service call visit. Do not let the outdoor unit run for very long without the indoor fan running. This could result in serious damage.

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BURNING SMELL:

A burning smell coming from a heat pump when it is first run at the beginning of the heating season is usually normal. It happens when the heat strips first come on and they burn off the dust that has built up on them during the cooling season. You may notice the smell several times during the first few days of heating. One way to speed up "getting rid of the smell" is to turn your thermostat up at least 5 degrees for about 15 minutes. This will cause the heat strips to stay on longer and "clean" themselves quicker.

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