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## **Why would I want to install a humidifier?**

For many reasons:

- Since the air in your home is always trying to reach its saturation point, it will absorb water wherever it can; from the bodies of you and your children, your pets, your furniture and even your house plants. As a result your skin, throat and nasal passages dry out, leaving you more susceptible to physical discomfort, colds, flu and even infection.
- Dry air causes dry, itchy skin.
- Dry air cracks expensive woodwork, floors, artwork and furnishings.
- Annoying static electricity (caused by dry air) can damage computers, VCR's and other electronic equipment, requiring expensive repair.
- Dry air can cause harm to expensive musical instruments like pianos and violins.
- Dry air causes gaps in window & door frames, letting cold outdoor air in; causing you to turn up the heat and increasing your heating bills! Controlled humidity from the GeneralAire® Elite Steam Humidifier allows you the luxury of dialing the thermostat back & reducing annual heating bills. For example, 68° at 40% relative humidity feels just as warm as 74° at 20% humidity. Setting your thermostat back by as little as three degrees can reduce annual heating bills by as much as 5%.

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## **Will a humidifier harm my home?**

A humidifier is a tool that helps you keep your home within your desired humidity level. If you keep your humidity levels within that range, you and your home are protected from the effects of having too little, or too much humidity.

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## **What range of humidity is ideal?**

Research shows that 40% – 60% relative humidity is ideal. Outside this range, your risk of being adversely affected increases.

### **Which humidifier is best for me?**

We recommend contacting your local certified HVAC contractor, as they will be able to make recommendations for your home based on its age, size & construction. Overall, you can begin to understand which model might be best for your home using the following:

### **First, determine how much humidification your home needs, known as Gallons Per Day (GPD):**

Use the 3-step formula below

#### **Step One**

#### ***Calculate the Total Cubic Feet of Home***

Total Home Square Footage  
X Average Ceiling Height

#### **Step Two**

#### ***Calculate the Load (lbs/hr)***

Total Cubic Feet X Desired Condition Factor (Table Below)  
X 1.05 for Each Fireplace

Pounds of Moisture per Cubic Foot (based on .5 air changes per hour)				
Indoor Air Temp	Indoor RH%			
°F	35%	40%	45%	50%
68	0.00015	0.00018	0.00021	0.00024
70	0.00017	0.00020	0.00023	0.00026
72	0.00019	0.00022	0.00025	0.00028

*Structures Are Not Equal: Windows, Walls, Ceiling, Roof*

#### **Step Three**

#### ***Calculate Gallons Per Day (GPD)***

Gallons Per Day = Load (lbs/hr) X 2.88

**Then, Select Your Unit**

Once you have calculated your gallons per day you can then find models that are designed to process that amount of water / accommodate your size of home.

You might also install more than one humidifier if your home has more than one HVAC system. Many people install a humidifier with each system to reduce the work load on each and more evenly distribute humidification throughout the home. If you do that, you'll want to divide the final GPD by the number of HVAC systems you have to determine the size of each model you want to install. Lastly, you may have a preference between steam or flow through/evaporative.

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## How does a humidifier work?

There are different types of humidifiers:

- **GeneralAire® Elite Steam Humidifiers:** The GeneralAire® Elite Steam Humidifier is an electrode humidifier. Steam humidification is produced by passing electric current through water inside a plastic steam generator cylinder between highly-conductive metal electrodes. Steam output is directly proportional to the conductivity of the water between clean electrodes. The Steam Cylinder therefore is the engine of the humidifier.
- **GeneralAire® Legacy Humidifiers:** A portion of the heated air from the furnace passes through a water-soaked VaporPad® where it absorbs additional moisture and then returns for distribution throughout your home. Water is metered into a patented Kineticflo® trough and dispersed uniformly across the VaporPad®. Unevaporated water drains from the bottom of the unit to eliminate mineral build-up.
- **GeneralAire® Elite Flow Through Humidifiers:** Fan Powered Humidifiers that mount on your furnace distribution system. The integral fan pulls heated air from your furnace and draws that air across a highly evaporative Vapor Pad®. Humidity is then absorbed into your air and distributed into the home for improved comfort during those winter months.

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## **How often do I need to change the vapor pad?**

We recommend replacing your vapor pad at least once per year. Minerals build up on the vapor pad over time, which in turn:

- Reduces the pad's ability to absorb water
- Prevents the warm air from flowing through the pad (Warm air moving through the water-soaked pad causes the water in the pad to evaporate. It is this process that delivers moisture throughout your home via the home's duct system).

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## **Does my humidifier require other maintenance?**

Steam humidifiers require minimal maintenance. As water evaporates inside the cylinder during its normal process of creating moisture via the electrodes, minerals are left behind. Much of these minerals are removed through the cylinder drain; however, some remain and build up on the cylinder walls and electrodes. As lower portions of the electrodes accumulate a thick coating, the water level automatically rises to expose clean electrode surface for maximum electric conductivity. Eventually mineral buildup creates a thick coating along the entire length of the electrodes and little electrical current can pass between them, resulting in poor steam output. The DS50 / DS50LC humidifier senses low amperage and displays the E6 Cylinder Exhausted error code. There is no need to replace your humidifier. At this time, simply replace your steam cylinder.

In high end construction and renovation projects humidification is often required while the structure is being finished, as it helps to protect and stabilize wood floors, trim and decoration. Humidification load in an unfinished structure may be five to eight times higher than a finished one. Elite Steam humidifiers may be operated while construction is underway but you may expect a shortened cylinder life as a result. To ensure your humidifier provides ideal humidification levels once the structure is finished, replace your cylinder.

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## **What is Humidity Load?**

Humidity Load (also known as Gallons Per Day) has a direct impact on the life of your cylinder. When properly sized to match the square footage of a home, a humidifier will rarely be required to run at full capacity. As a result, water levels inside the cylinder remain lower and buildup of minerals on the entire length of the electrodes takes longer. Thus, the life of your cylinder is greatly enhanced. Conversely, extraordinary installations that require constant operation at full capacity reduce cylinder life. The water level in the cylinder stays generally much higher, and the electrodes become completely insulated by mineral buildup more quickly. Installations like this may result in cylinder life of less than 1000 hours.

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## **How does water conductivity affect the performance of my steam humidifier?**

Steam cylinders must be matched to the local water conductivity in order to perform as designed. If not familiar with local water conductivity, check using an instrument ( EZTestr11 Conductivity Tester). You can also have your water tested for conductivity by the city or a [local contractor](#).

The following water types are not acceptable:

- Softened water, as this will lead to foam, electrode corrosion and greatly shortened cylinder life.
- Water containing disinfectants or corrosion inhibitors, as these are potential irritants
- Industrial water, boiler water or water from cooling circuits.
- Any potential chemically or bacteriologically contaminated water.
- Heated water.
- Water with silica deposits.

Overall the humidifier must be supplied with the following water characteristics:

- Pressure between 20psi and 110psi; or 0.1 and 0.8 MPa (1 and 8 bar)
- Temperature between 33° F and 104° F; or 1° C and 40° C

- Flow rate minimum of 0.45 L/min or 0.21 gpm
- Hardness no greater than 40° fH (equal to 400 ppm<sup>3</sup> of CaCO),
- Conductivity from 125 to 1250 µS/cm
- Absence of organic compounds

Read more on [page 11](#) of the installation / owner's manual.

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### **I already have a GeneralAire® 1042 Humidifier installed, but have a 4,000 square foot home. Should I upgrade to a larger humidifier?**

We suggest *adding* a 1099LHS unit and *keeping* your currently installed and functioning 1042. Your home size requires more humidification than the 1042 was designed to produce, and two units would be a benefit. Having two humidifiers provides the humidity your home needs without "over-stressing" either unit; thereby ensuring the longest life of both units. If one unit experiences mechanical difficulties, you still have the other humidifier producing moisture for your home. Tip: connecting to the hot water would help increase humidity by approximately 30%. Don't forget to change the vapor pad once per year for optimum performance.

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### **What is the "OFFSET" mode on the GFX3?**

The GFX3 offset mode is used to match the readings of your new GFX3 to other controls in the home (humidity level, outdoor temperature and indoor temperature).

Example: Your GFX3 reads the inside humidity as 25%, but another humidistat inside the home reads 29%. Use the offset feature in the GFX3 to match the other reader. You now have consistency throughout your home.

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### **How do I change my cylinder? (Steam Units Only)**

These instructions can also be found on page 22 of the Elite Steam Installation / Owner's Manual.

1. Completely drain the cylinder by pressing and holding the "drain" button.
  2. Turn the humidifier off and disconnect the main power.
  3. Remove the cover.  
DS Models: Remove steam hose from cylinder, flip up the cylinder holding bracket.  
RS Models: Remove 2 bolts of the embedded fan, flip up cylinder holding bracket.
  4. Disconnect the distributor from the cylinder and lift the cylinder out of the unit.
  5. Disconnect the electrical connection from the top of the cylinder, and re-connect to the NEW cylinder.
  6. Install the new cylinder, performing these steps in reverse.
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### **How do I ensure the greatest performance of my 1042 Humidifier?**

Perform regular, annual maintenance as described below.

1. Turn off water supply and electrical power to humidifier.
2. Disconnect the 1/4" water supply line from the solenoid valve.
3. Remove the small brass filter assembly from the solenoid valve.
4. Disassemble the filter and carefully pull the screen from the orifice fitting. Clean the mineral deposits from all parts. If the orifice is clogged, it may be opened by inserting a small needle. Reassemble the filter and screw assembly into solenoid valve.
5. Remove water distributor tube, distributor trough cover, and trough and drain pan. The evaporator pad may be removed from either the top or bottom of the humidifier. Occasionally, lack of adequate clearance may require removing humidifier cabinet. Clean excessive mineral deposits from the distributor trough, trough cover and drain pan. A solution of 1/2 vinegar & 1/2 water or a lime-away cleanser will help loosen mineral deposits.
6. If the evaporator pad has excessive mineral deposits, replace with a new "990-13" evaporator pad. Install trough and drain pan. Replace cover and the distributor tube to proper position over the distributor trough.
7. Check drain line for mineral deposits, clean or replace as necessary.

8. Connect the 1/4" water supply tube to the filter assembly and tighten. Turn on the water supply and check all points for leakage. The operation of the unit may be checked by starting the furnace blower with the manual switch on the fan control or by starting the furnace. The humidifier operates only when the furnace blower is running. Check the humidifier for proper operation.
9. During the summer season, turn off water supply and electrical power to humidifier.

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### **I need to replace the relay on my 1137. How do I do this?**

When you are finished, you should have three connections like this:

1. The black wire from cord, a black wire from board, a blue wire from board.
2. Other blue wire from board, a black wire from motor, a black wire from valve.
3. The white wire from cord, other black wire from board, other black wire from motor, other black wire from valve.

Finally, all the green wires should come together under the screw of the "L" bracket.

Tip: The most common installation mistake involves bundling of the various wires in the wire nuts.

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### **Can't I simply clean my Vapor Pad instead of replacing it?**

At the factory we put a coating on the evaporator pad that helps it absorb water and control water flow. This coating is very efficient, however, it is also fragile. The coating is similar in composition to the minerals that accumulate on the pad. If you subject the pad to cleaning with an acid, you usually remove much of the coating and the pad becomes ineffective. This reduces the output of the humidifier and increases water consumption.

Instead we suggest the evaporator pad be replaced each year.



