

Now is the time to schedule your HVAC maintenance!

Booking Maintenance Now!

Call to schedule your maintenance now and your units will be ready to go for warm weather.

508-763-3738

Ask about our automatic scheduling or Maintenance Agreements and never worry about forgetting to call again! You will also receive priority scheduling for all emergency service when you sign up for auto-scheduling or Maintenance Agreements!



Karen Lamy DeSousa, Editor and Owner
Chris Lamy, Owner

Phone: 508-763-3738
Fax: 508-763-8541
Email: info@advanceair.net
www.advanceair.net

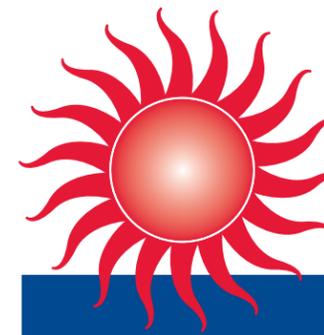
Proud Supporter Proud Supporter



For changes of address, or if you'd like to receive this newsletter via email, please contact Karen DeSousa at karen@advanceair.net or 508-763-3738.

RETURN SERVICE REQUESTED

www.advanceair.net
East Freetown, MA 02717
177 Bullock Road



ADVANCE



AIR & HEAT COMPANY INC.



Spring Newsletter 2016

DIY Air Quality – Ten Potted Plants that Remove Toxins

We've all heard a lot about indoor air quality in recent years – whether it's severe issues such as sick building syndrome and mold, or high levels of carbon dioxide caused by office mates too full of hot air for their own good – I think we can all agree that the air we breathe is pretty darn important.

Air quality is not as straightforward as you might think. Issues impacting air quality start as early as the building construction phase – Did you know there's such a thing as making a building too air-tight? Or that if a building is not properly plumbed and/or ventilated, a brand new building can quickly grow mold and/or harbor legionnaire's bacteria? Then there's all the crazy stuff we bring into the building once it's constructed, like paint, carpeting, adhesives for flooring, piping and the chemicals we use to clean the building every week. Things that can cause cancers, asthma, allergies, auto-immune disorders and other diseases. Kind of makes you want to flee to the outdoors immediately, or at the very least, open a window.

So when I stumbled across an unexpected, but very cool article about air quality that talked about the benefits of using certain plants to help purify air of all of these crazy chemicals, I got pretty excited. I'd always heard that plants can remove carbon dioxide – the stuff we breathe OUT – and add oxygen – the stuff we breathe IN, but never have I heard of plants that actually remove TOXINS from the air. Toxins like benzene, formaldehyde and trichloroethylene (I don't even KNOW what that last one is, but it sounds TERRIFYING). So check it out:

- Aloe Plants, Bamboo Palms, Spider Plants and Boston Ferns remove formaldehyde. Formaldehyde is not just for do-it-yourself embalming kits, it's more common than you think. It's in a lot of permanent press fabrics, air fresheners and furniture or cabinets made of plywood, MDF or particle board.
- Gerbera Daisies and English Ivy remove benzene. Benzene is a common household chemical and a carcinogen. English Ivy also removes formaldehyde and is said to be great for asthma sufferers.
- Queen Ferns remove toluene (wasn't that the bar planet in Star Wars?) formaldehyde and xylene (a chemical found in plastics and solvents).
- Moth Orchids remove VOCs (volatile organic compounds) contained in many paints.
- Mums and Peace Lilies remove benzene, trichloroethylene, formaldehyde and ammonia. Peace lilies are also great at removing mold spores from the air, making it great for bathrooms, kitchens and laundry rooms.

If you're like me, and you have very little knowledge or finesse with plants, you can get detailed information on how NOT to kill the above plants (and several others) at the link below:

<http://www.sustainablebabysteps.com/types-of-houseplants.html>

Plants are a great way to improve your environment, however, they may not solve all air quality issues. If you have an air quality problem or experience symptoms like headaches or respiratory distress, we recommend calling a professional to test your building. Air quality problems can range from minor to severe and generally do not improve with time if left untreated.

Why HVAC and Boiler Equipment Breakdown Insurance is Something to Consider

Article written by Michael H. from US Insurance Agents with John Beaugard from Sylvia Insurance.

In the business world, time is money, and time lost due to equipment failure can be very expensive. Even though you might think most equipment breakdowns are singular in nature such as one computer crashing, in reality, you could be facing a breakdown of your entire computer system or HVAC or refrigeration system due to a power surge or short-circuit. That is where equipment breakdown insurance steps in, to protect you financially from lost time, lost product and/or lost revenue due to equipment failures.



What's Inside:

DIY Air Quality – Ten Potted Plants that Remove Toxins

Why HVAC and Boiler Equipment Breakdown Insurance is Something to Consider

What is an ECM Motor?

Advance Air & Heat, Inc
177 Bullock Road
E. Freetown, MA 02717
508-763-3738
www.advanceair.net

What does equipment breakdown insurance cover?

Your traditional business insurance covers you in the case of fire, flooding, and liability things such as a customer or vendor injury on your property. General liability insurance also covers damages to your property or a client's property by an employee. On the other hand, it does not typically cover equipment damaged by employees to a client's computer system. For example, a virus that causes a complete or partial loss of data. In this example, equipment breakdown insurance could cover the labor costs to recover or rebuild your lost data, as well as any lost time or revenue until you are back up and running.

Equipment breakdown insurance can pay for the repair AND to replace spoiled stock lost as a result of the failure to help your business get back on its feet faster. If your business includes frozen or refrigerated perishables such as a restaurant, residential facility or food manufacturing and distribution, this coverage also pays to replace spoiled stock lost due to the equipment breakdown.

If your air conditioning fails and you have revenue lost due to tenants, employees or customers not being able to stay in your building, the insurance will cover these costs as well.

Do I need coverage if I do not own the building?

As a tenant, you would not be responsible for things affecting the building only such as plumbing floods, elevator failure, and roof leaks (although you would not be covered for water damages to your equipment and other property). So the answer is yes, you need coverage even if you do not own the building. In the example of the roof leak the owner would only be responsible for repairing the roof; damages to your property are not paid by his liability insurance.

Is the equipment breakdown insurance comprehensive?

Although your equipment breakdown insurance may not cover 100% of your property, it is fairly comprehensive. Basic equipment coverage includes air-conditioning equipment as it pertains to a loss of revenue such as in a restaurant, refrigeration as it pertains to, in our restaurant example, food spoilage etc. It covers production machinery, medical and electrical equipment such as computers and telecommunications systems failure.

There are different levels in this type of insurance. The coverage offered changes with different levels of coverage. There is better coverage for higher premiums, and conversely, there is lesser coverage for lower premiums.

How much insurance is enough?

Although it may be difficult to estimate the scope of future losses, clients can use a cost-benefit analysis to explore the pros and cons and possible losses based on your specific business type. If you're the restaurant owner, for example, you would need to estimate weekly revenue versus weekly inventory purchases to come up with a figure that may cover the cost of your loss. Other things apply such as the age of equipment, and the necessity of certain equipment. Naturally this will not be a comprehensive figure but your best ballpark estimate regarding the potential loss.

Before purchasing any equipment insurance, weigh your options, and speak with a licensed insurance agent to figure the best coverage for you.

Article written by Michael H. from US Insurance Agents with contributions by John Beauregard from Sylvia Insurance.

What is an ECM Motor?

Several of us were discussing ECM motors in the office the other day. Yeah, we have weird water cooler conversations like that. The general consensus was that although we were familiar with the concept behind them – they are motors that regulate their own speed without the help of an external VFD or other device – none of us really understood the magic behind what makes an ECM Motor actually work. Without a VFD or external sensors to monitor pressure, temperature, or anything else, how the heck does the motor know when to speed up and when to slow down?

What is an ECM Motor?

x-13-motor1ECM stands for an “electronically commutated motor” which basically means a motor that uses electronic controls to vary its speed. There are three types of ECM motors: constant cfm, constant rpm, and constant torque. Since cfm, rpm and torque are all related, the basic principles are the same. But for ease of discussion, I'm going focus on a Constant Torque ECM motor.

A Constant Torque ECM is made up of two parts, the motor and ECM Microprocessor, that are both housed in one shell. The microprocessor is the “brains” of the motor. It holds the logic that controls the motor. The logic is a math equation or algorithm that figures out the ideal



airflow for each specific piece of HVAC equipment out there and uses a formula to maintain that airflow using a calculation of the precise relationship between motor speed and torque.

It should be noted that the ECM motor programming is specific to each model of HVAC equipment, so programming is ONLY done at the factory, not in the field. When ordering a replacement ECM motor, techs must know the specs of the model in which the motor will be installed for it to work properly.

How does an ECM Motor work?

Once the settings are programmed into microprocessor in the factory and the control board dip switches are set in the field, the motor torque and airflow (CFM) should remain steady*. What WILL change is the speed of the motor (RPM). Depending on system conditions, the motor will need to spin faster or slower in order to keep a steady torque and airflow. This was where me and the folks in my office really got stuck. We couldn't figure out what could initiate a change in torque? It turns out it's static pressure in the system.

When the load or demand on the system increases (like it's really hot outside, for example), a higher static pressure is present. Higher cooling demand increases condensation on the evaporator coil, reducing air flow (hence higher static pressure). Resistance to air flow can also be caused by a clogged filter or dirty coil, which will also increase static pressure. This higher pressure increases the torque on the motor. An increased torque basically means that it requires more “muscle” to turn a motor. Higher pressure essentially creates additional resistance on the blades of the fan motor, which is why it needs more “muscle” or torque to turn the motor.

When the microprocessor senses increased torque, it automatically increases the speed of the motor. A faster motor creates more airflow to make sure that CFM stays steady despite the resistance in the system from conditions like clogged filter or a hard-working evaporator. More airflow also reduces static pressure, which reduces torque. At the same time, increased airflow also provides the additional oomph of airflow that the system needs to provide additional cooling or heating capacity during high demand times for the system.

* Ideal airflow will be different in heating and cooling modes. The control board dipswitch settings (usually set in the field) need to be set up properly for proper seasonal operation.

How does an ECM Motor save energy?

The energy savings come into play when demand and static pressure decreases. When it is not needed at full speed, the motor can slow down, which uses far less energy. A motor running at full speed uses nearly 8 times the energy of a motor running at half speed. So any time you can slow it down, even a little, saves you big bucks. And since you don't NEED the motor to run at full speed all the time, it's a no-brainer energy savings technique!

I found an article from our friends at York that gave a “real-world” example of how ECMs work. Here is that excerpt:

“Let's say you have a 3 ton air conditioner. So we need 400 CFM per ton or 1200 CFM to work properly. You use the programming board and set BOTH the cool and adjust profiles for as close to 1200 CFM as you can. (Always use the manufacturer's tables for setting up an ECM motor). Now, on a call for cooling, the motor turns on and is going to try to maintain your programmed CFM. Here is where added efficiency comes in because we are maintaining ideal CFM across a range of operating conditions. Of course, as an air conditioner runs, the evaporator is going to get “wet” since we are removing latent heat and humidity. When the coil gets wet, the static pressure of the system goes up. As the static goes up, the motor senses a change in torque (like the car going uphill) and starts to increase the RPM of the motor in order to maintain the CFM of the system. Same thing occurs as a filter gets dirty, return static increases and the motor revs up the RPM to maintain the CFM. Now, as the latent heat decreases and there is less humidity or water on the coil, or someone changes the dirty filter, there is less static, a reduction in torque, so the RPM's decrease, all the time maintaining CFM.”

“The same thing occurs in heating mode. You have programmed the motor to maintain a desired “temperature rise” for the system. The motor will deliver that CFM to maintain that rise. But, again, if the filter is getting dirty, the motor's RPM will increase, to maintain the CFM and temperature rise.”

Are ECM Motors the Way to Go?

Good question. There is an obvious appeal to using a motor that regulates it's own speed versus a motor plus VFD – it's less expensive to buy one instead of two items, it takes up less room and it's more or less pre-programmed for the unit that you have. However, there is also a down-side to an “all-inclusive” motor. If a VFD breaks, you can simply bypass it and the motor will still run. If the logic, electronics or mechanical parts fail on the motor, you have down-time. And, if you remember, these motors need to be programmed BY THE FACTORY. So it's not likely that they're waiting on the shelf at your local supplier. That is a big concern if you have critical equipment or even just grumpy tenants. Nobody wants to wait days for their AC to work again and waiting for heat in the dead of winter isn't even an option. Though there are tremendous benefits to energy efficiency and greater controls, the simple fact is that the more complicated you make a mechanical item, the more opportunity there is for things to go wrong. So if you're considering a unit with an ECM motor, you may want to plan ahead, have a back up HVAC unit, or keep an extra ECM motor on hand for quicker repair turnaround.

There is a huge amount of potential energy savings to be had from controlling motor speed. But how you choose to do that should be carefully considered. Make sure your HVAC contractor understands your business and can help you to decide the best options for you.

