

BREATHE EASY

How to Make Your Home Healthier



Courtesy of John's Refrigeration



Breathe Easy:

How to Make Your Home Healthier



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Introduction

We designed this e-book with you in mind. Your family's health is our priority, both physical and financial. In this book, we provide tips for making your home more energy efficient, saving you money on utility bills. This includes DIY tips for making your home more efficient, how to select an air filter and the importance of monitoring carbon monoxide in the home.

Tips for making your home healthy include illustrating how your home breathes. Yes, our homes take air in and out just as we do. When the breathing is restrained, contaminants, dust, and pollen enter or stay in the home. This creates poor indoor air quality and an unhealthy environment. At John's Refrigeration, our team is dedicated to helping you understand how your home breathes and creating a healthy environment for you and your family.

We have included a guide for choosing an HVAC installer that is right for you. It's not just about installing a new unit to keep you warm or cool. It's about making sure the entire system of the home, including duct work, is sized, sealed and operating at top efficiency.

Our customers are our priority, which is why we literally roll out the red carpet for you when we visit your home. From the time you call us to when that carpet is rolled out and our trained technicians inspect your home, we strive to provide top quality customer care. We guarantee our service and equipment or we will return your money!

It is our pleasure to provide the following tips and information to help you create a healthy home environment.

John's Refrigeration is a family owned and operated business since 1970. Located in Mesa, Arizona, they are dedicated to providing their customers the highest level service, products and information. This book is a compilation of their most frequently asked questions, as well as educational tips for the homeowner seeking answers to home efficiency questions.

Table of Contents

Chapter 1: 5 Reasons to Work with John's Refrigeration	1
Chapter 2: HVAC Systems are Less Effective than You Think.....	2
Chapter 3: Tips for Choosing the Right HVAC Installer	3
Chapter 4: Simple Ways to Make Your Home Healthier	5
Chapter 5: Reasons to Renovate a Duct System	7
Chapter 6: Air Balancing in Your Home	9
Chapter 7: Reasons a Low Level Carbon Monoxide Monitor is Important to Health	10
Chapter 8: How to Choose an Air Filter for Your Home	12
Chapter 9: Tips for Selection and Installation of the Right Thermostat for Your Home.....	14
Chapter 10: Six Energy Saving Tips for Homeowners.....	16

Chapter 1:

5 Reasons to Work with John's Refrigeration

As a family owned and operated business in Mesa, Arizona for more than 40 years, we understand your home like it is our own. It is our mission to help you create and sustain clean, healthy air in your home so you and your family can live in comfort knowing your system is running efficiently. We accomplish this with high quality parts and services, including educating our technicians on best practices and providing our customers a 100% satisfaction guarantee.

Choosing the right HVAC company is a difficult decision, which is why we offer these five reasons to work with John's Refrigeration:

1. Our technicians are of the highest quality. They are background checked before they are hired into our drug-free environment. They take part in ongoing training and education so they understand the latest HVAC trends and technology.

2. 100% Customer Satisfaction is our Guarantee. We want you to be satisfied with our products and service or we're not finished helping you.

3. Peak Performance Club Membership: Having this membership means your HVAC system is checked by our technicians twice a year. That is a per home, per comfort unit, 51-point inspection keeping your system running efficiently. In many cases, these inspections catch maintenance issues before they are replacement issues.

4. Five Step Home Efficiency Process: An efficient HVAC system is about more than having a unit that is running. It is about the efficiency of the home. Our technicians can complete a five step home efficiency process that includes inspecting the duct work of the home, air and pressure balancing, and incorporating a fresh air component to the system. We believe in having a green environment, which means helping your HVAC system run efficiently so as not to waste resources.

5. Clean Air Experts: Did you know the air in your home can be dirtier than the air outside? We want the air in your home to be as clean as it can be, which is why we recommend [Whole House Air Cleaners](#). This system will remove 99% of allergens, flu virus, and more from the air in your home.

We're proud to be the local air quality experts keeping you and your family safe! Contact us today to learn more about how we can help you.

Chapter 2:

HVAC Systems are Less Efficient than You Think

At John's Refrigeration, we pride ourselves on outstanding customer service. Whether you're selecting a new air filter or a new HVAC system, we are here to guide you through the process. When it comes to selecting a new HVAC unit, we want our customers to choose a product that is best for them, their home, and their family.

The reality is that HVAC systems are less efficient than you think.

What is a SEER Rating?

The SEER Rating is the Seasonal Energy Efficiency Ratio. It is the rating of the HVAC unit cooling output during a typical summer, divided by the total electric energy output during that same time. The higher the SEER rating is, the more efficient the unit.

Homeowners often use a SEER rating as a benchmark for selecting a new unit. The problem with using this as a benchmark is in understanding how the SEER rating is derived.

A SEER rating is derived in a laboratory setting with a steady temperature of 85 degrees with perfectly installed ductwork, including proper duct sizing and no leaks.

This is great, except there are no homes with this type of environment. The average operating efficiency is 63% of the rated capacity, due in large part to improperly sized ductwork and poor system installations.

What can be done to make the HVAC system more efficient?

As we discuss in Reasons to Renovate a Duct System, the duct system is key to energy efficiency within the home. As much as 20% of the air that moves through the duct system is lost to leaks and improper installation.

At John's Refrigeration, we understand the value of an efficient HVAC system and can help you create an efficient and clean home environment.

Source: <http://contractingbusiness.com/archive/why-hvac-systems-are-less-efficient-you-may-think>

Chapter 3:

Tips for Choosing the Right HVAC Installer

When selecting a new HVAC unit for your home, it is almost unimportant which unit you select. Each unit receives a Seasonal Energy Efficiency, or SEER, rating. The higher the rating, the more efficient the system is. The challenge with the rating system is that it is based on a perfect laboratory setting of 85 degrees, perfect duct work, and no air leaks. More than likely, these conditions do not exist in your home.

The true value comes when you choose the right HVAC installer.

A good company, such as John's Refrigeration, will ask what you want for your home. Factors to consider include the optimal temperature for the occupants, including pets, the air quality, and energy efficiency. These factors, in large part, have to do with the quality of the installation rather than the actual unit.

Here are Tips for Choosing the Right HVAC Installer:

1. Licensed and Insured:

Your peace of mind, safety, and protection mean everything to us. We will show you our \$2 million policy so you know we're serious.

2. Our technicians

take part in ongoing training and education so they understand the latest HVAC trends and technology.

3. Guarantee of Work Quality:

We offer a 100% money-back guarantee to all customers, as well as a lifetime workmanship guarantee. We don't rest until our customers are happy with our work.

4. We aren't just

going to switch out the HVAC box. We care about finding solutions to your family's needs and expectations. It is important to us for our customers to establish a safe, healthy, and comfortable home environment.

5. We understand the needs

of your family go beyond having hot and cool air on in your home at the appropriate times of the year. A customized comfort system for your home is about more than switching out the HVAC box.

We review the entire system to find areas of improvement for energy efficiency, including the following:

- Size the unit properly for the size of the home and number and lifestyle of occupants.
- Identify insulation issues.
- Identify major attic-to-home issues.
- Pressure check and balance air to create an efficient system.
- Address safety and health issues.
- Establish good air quality and distribution.

At John's Refrigeration, we understand HVAC installation is about more than sampling switching out the box. We want to help create a safe, healthy, and comfortable home environment that meets the needs and expectations of our customers.

Chapter 4:

Simple Ways to Make Your Home Healthier

Did you know? The air in your home is dirtier than the air outside. This is due in part to the recommendations of the US government during and since the 1970s energy crisis. At that time, it was suggested that American homes be sealed as much as possible to prevent precious oil and electricity from being wasted. The result is that our homes aren't breathing in a way that makes them healthy for us.

Our homes breathe? Yes, our homes have a life of their own. They take air in and out just as you do. When they are sealed tightly, the breathing is strained, causing contaminants, dust, and pollen to enter or stay in the home. This creates an unhealthy environment.

At John's Refrigeration, we believe in creating healthy homes which is why we offer the following simple ways to make your home healthier:

1. Duct System:

A properly sized and sealed duct system eliminates dust and contaminants, as well as hot air, from being brought into your home through the A/C system. The team at John's Refrigeration can help you cut as much as 20% from your heating and cooling related energy costs by testing and repairing the duct system of your home. Once the duct system has been evaluated and renovated as needed to create an efficient system, we balance the pressure in the home.

2. Balance Pressure:

Your home is an extension of the duct system. Closing interior doors creates rooms that are not neutral pressure; they are positive or negative and effect the way the home breathes. Negative rooms, for example, become unsafe because contaminants like dust, pollen and carbon monoxide can be drawn into the home. Positive rooms push the cool (or warm) air out of the home. Whether positive or negative, it creates uneven temperatures throughout the house, making it uncomfortable for you and your family.

3. Fresh Air:

Adding fresh air to the home creates a slightly positive pressure and keeps dust and other contaminants out of the home. Your home breathes and we don't want it to be breathing hot, dirty, contaminated air from the walls or attic.

4. Filtration:

The final way to create a healthy home is to add a purification or filtration system to clean the air. The type of filtration system is up to the needs of the homeowner. A home with pets and/or more than two occupants would probably need a different system than a non-pet home with two or less occupants, for example.

At John's Refrigeration, we understand simple ways to make your home healthier. Concerned about the health of your home? Give us a call. We're happy to help you.

Chapter 5:

Reasons to Renovate a Duct System

The efficiency of the HVAC system of your home is dependent on many factors, including the duct system. A properly sized and sealed duct system eliminates dust and contaminants, as well as hot air, from being brought into your home through the A/C system. The team at John's Refrigeration can help you cut as much as 20% from your heating and cooling related energy costs by testing and repairing the duct system of your home.

Did you know?

- As little as 70% of the work the HVAC unit does actually ends up in your home. This is due in large part to the duct system being inefficient.
- As much as 20% of the air that moves through the duct system is lost due to leaks or improper installation.
- Our high quality and experienced home comfort specialists are authorized by SRP and APS for duct testing and repair.
- You may be eligible for SRP and APS rebates for duct testing and repair services.

Your home may have ducts that are not properly installed if you experience:

- Extremely high energy bills during the hottest or coldest months.
- Rooms that are stuffy or difficult to keep cool or warm.
- Excessive dust and unpleasant odors.

What creates the inefficiency?

The duct system is basically like the veins in your body. It carries the air from inside, through the HVAC system, and back into your home. If the ducts are not sized properly, or the wrong filter is used, it creates high pressure in the HVAC system similar to high blood pressure in your body when your veins aren't functioning properly. This makes the HVAC system work harder, costing you more money.

Renovating the duct system helps the system run efficiently, costing you less money.

Typically, HVAC units are placed in the attic of the home. The system pulls air from the house, through the system, and back into the home. In the summer, the air pushed back into the home is cool and in the winter is warm. An efficient HVAC system will take all the air from the home and return the equal amount of air back into the home and will maintain a season-appropriate temperature.

A proper duct system is sized, sealed, and insulated properly. Having the duct system sized wrong can create high blood pressure in the system. Many times the duct system is sized wrong but it is still working because of leaks. This is why we pay attention to both the sizing and the sealing of the system.

At John's Refrigeration, we want to create a healthy and efficient home environment for you and your family. Contact us today to learn more about testing and repairing the duct system of your home and applying for rebates from APS or SRP.

Chapter 6:

Air Balancing in Your Home

If you notice rooms having different temperatures, you might need air balancing service in your home. You may describe this as cool zones or warm zones; there are areas of the home that are inconsistent temperatures. As you move through the house, you adjust the thermostat to the ideal temperature for the area where you are, rather than the whole house being balanced to one temperature.

Changing the thermostat frequently can cause an increased utility bill. The system is working harder than it would need to if the air were balanced.

Varied temperatures within a home indicate a block or leak within the duct system. Much as your body can have high blood pressure, so can the pressure in your home. This causes the temperature variance in areas of the home. A warmer room can mean a leak or is an indication of a duct that is sized or installed incorrectly for the size of the room. As certified air technicians, our team is qualified to test, diagnose and repair ducts and equipment.

A simple solution for the do-it-yourself homeowner is to open all registers in the system and get half a dozen thermometers. Be sure the thermometers are set to about the same temperature. Place the thermostats in various rooms about three feet from the floor. You don't want them too close to the air return or the register.

Wait one hour and check the temperatures. Slightly close the registers of the rooms with higher temperatures and repeat the process until the rooms are the same temperature. While this will not resolve a problem within the duct system, it will give your family relief until our team can come and help you.

Basically, air balancing means measuring and adjusting the volume of airflow into each room. By doing this, every room in your home will be as comfortable as possible with the equipment you have on hand.

For more information on air balancing and other HVAC system needs, please [visit our website](#).

Chapter 7:

Reasons a Low Level Carbon Monoxide Monitor is Important to Health

The biggest reason a low level carbon monoxide (CO) monitor is important to health is that CO is the #1 cause of poisonings around the world. At John's Refrigeration, we help our customers create healthy home environments, which is why we want you to understand the importance of installing a low level CO monitor. Understanding the causes, symptoms, and prevention of CO poisoning keeps your family healthier and can even save lives.

Carbon monoxide enters the home in different ways. Sources include water heater, gas range, space heaters, negative pressure in the home, and from vehicles in your attached garage. Because these are all common in the home, we suggest monitoring the levels of CO in your home.

Most CO monitors don't alarm until the CO level reaches 70 parts per million (PPM) for more than three hours. OSHA and the World Health Organization's guidelines are 15-35 ppm. That leaves a lot of time for your family's health to be compromised.

Poisoning from carbon monoxide (CO) is often initially misdiagnosed as the flu. When CO enters the bloodstream it prevents oxygen from reaching vital organs, including the heart and brain. Symptoms include dizziness, headache, GI issues, and other flu-like symptoms. The interesting part is that symptoms are less severe when you are away from a home or building with higher levels of CO; that's not common with the flu or other non-CO poisoning illnesses.

Preventing CO poisoning includes the following steps:

1. Testing CO levels in your home by a professional HVAC installer.
2. Annual inspection and servicing of HVAC systems. We offer preventative maintenance packages to all new and existing customers. Visit <http://www.johnsrefrigeration.com/service> for additional information.
3. Never use a charcoal grill or portable generator in an enclosed space like a home, garage, or shed.
4. Never use a gas stove or oven to heat your home.
5. Install a low level CO monitor in your home. We can help you find one.

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6. Understand the symptoms of CO poisoning including headache, dizziness, weakness, nausea, and vomiting. Leave the home and get to a hospital for treatment.

Contact us to learn the options offered by John's Refrigeration for CO testing, low level CO monitors, and all your HVAC needs.

Sources: Link from NCI to <http://www.stopcarbonmonoxide.com/index.cfm?p=page&id=11>

<http://www.kidde.com/PressRoom/Pages/IsItTheFlu.aspx>

<http://www.carbon-monoxide-survivor.com/carbon-monoxide-poisoning-symptoms-multiple-exposures.html>

Chapter 8:

How to Choose an Air Filter for Your Home

The dry, dusty Arizona climate makes it especially important to change the air filter in your home. Indoor air filtration is your first line of defense in achieving good health, but is often overlooked. You've seen the air filter commercials on television. What the manufacturers don't tell you is how restrictive some of these filters can be. Restricting airflow makes the system work harder, which in turn increases your electric bill.

Resistance and Efficiency:

Select a filter that is low resistance and high efficiency. If the filter you use is "sucked" into the space, you are using a filter that has too high a resistance. You're actually making the system work harder; it's like it is breathing through a small tube or having an asthma attack – the system has to work hard to cool your home. Less resistance is like breathing without asthma; it is smooth and efficient.

What size do you need?

Not all homes or HVAC systems are the same. The proper size filter will help reduce the dust, dirt, and other allergens that enter your home through the system. The technicians at John's Refrigeration can verify whether your current filter is the proper size for the current system and filter selection.

Has your system been serviced recently?

At John's Refrigeration, we offer preventative maintenance packages to help keep your system running efficiently, even through the heat of the Arizona summer. We check the HVAC system of your home or business annually, making recommendations as we walk through our complete assessment. Regular maintenance means catching issues before they become major repairs.

What is a MERV Rating for an air filter?

MERV Ratings measure the ability of an air conditioning filter to remove dust from the air as it passes through the filter. The higher the rating, the more particles removed before they reach the air in your home. Ratings range from 1-16. The most common particles are pet dander, dust, smog, viruses, smoke, spores, pollen, bacteria, and environmental contaminants, such as

pesticides. A rating of 5-8 is good for a residence; a rating of 9-12 is better for a residence. Our technicians can verify whether the current filter is the proper size for the current system and filter selection.

Changing the filter:

Whichever air filter you choose for your home, it is important to change them regularly, perhaps once a month, especially during the high-use, dry, dusty summer. Not cleaning or replacing the air filters causes the system to work harder. The results can be higher utility bills and repair costs. At John's Refrigeration, we want you to feel comfortable breathing clean air in your home or business.

We recommend the Air Care electrostatic filters Silver Series which are low resistance and 84% efficient. Call us to learn more about these filters and any HVAC questions and concerns.

Chapter 9:

Tips for Selection and Installation of the Right Thermostat for Your Home

If you're a do-it-yourself homeowner, you may have bought and installed your own thermostat. Did you know? Thermostats you purchase at the big box stores are not the same quality and grade we use for our customers. As an HVAC contractor, we are able to purchase contractor grade thermostats that generally have a five year warranty and are higher quality. This isn't to say the box store thermostat you bought isn't good for your home. There are plenty of great options.

Here are tips for selection and installation of the right thermostat for your home:

1. Type of HVAC System:

The type of thermostat depends on the type of system you have at your home. The most common are heat pump or gas heat. Some thermostats are universal, so it important to check the box before purchasing.

2. Programmable:

Most people choose a programmable thermostat to help manage energy costs. They can cool the home when rates are off-peak to save money. There are now thermostats that can be accessed through an app. You can turn the fan on and off and manage the temperature of your home right from your cell phone!

3. Installation: This may surprise you: we recommend* not looking at the installation instructions for wiring. Simply take a picture of the old thermostat and install the new one the same way. Remember to turn off the air handler before beginning uninstall and re-install.

*If the new thermostat has a C terminal and the old one did not, you need to call us for assistance. Please turn off the breaker to the air handler. If the unit is on the roof, please turn off the entire unit before starting any installation and especially if the old thermostat had a C terminal.

At John's Refrigeration, we want you to feel comfortable breathing clean air in your home. Should you have questions about your HVAC unit or the thermostat installation, please do not hesitate to give us a call.

Chapter 10:

Six Energy Saving DIY Tips for Homeowners

Making your home energy efficient is complicated business. From sealing and insulation to how we live in our home, there are many ways to lose energy efficiency. At John's Refrigeration, we offer a 51-point inspection of the HVAC system, including the ductwork of the home. Our Peak Performance Home Evaluation includes air and pressure balancing or pressure checks, an option for incorporating a fresh air component to the system, and more. As a homeowner, there also things you can do to make your home more efficient.

Did you know? As much as 80% of energy savings comes from 20% of needed repairs, which is why we offer the following six energy saving DIY tips for homeowners:

1. **Sealing around wall or ceiling registers:**

By sealing the registers, you are helping to eliminate dust, dirt, pollen, other contaminants, and hot air from entering your home via the attic and air conditioning system.

2. **Insulating and sealing the attic hatch**

is a forgotten task for many homeowners. It's a place where air can be lost or drafts can occur, decreasing the efficiency of the HVAC system and increasing energy costs to you.

3. **Install shade screens on the outside of the home.**

This actually has a greater return on investment (ROI) than replacing windows and doors, at least here in the Arizona desert. The shades prevent the sun from heating the home as much as its non-shaded counterparts. It will take less energy to cool it saving homeowners energy costs.

4. **Stop closing doors.**

Many homeowners are under the false assumption that closing doors helps save energy when the opposite is actually true. Ideally the entire home should be at a neutral pressure. Closing doors causes a positive

or negative environment which causes cool air to escape or brings hot air and contaminants in from outside the home. Keeping the doors open helps keep pressure closer to neutral and your system working more efficiently, saving you money.

5. Programmable thermostats

are a great way to regulate energy use and utility cost. Some even have the option of controlling the HVAC system right from your cell phone! Check out our article about selecting and installing the right thermostat for your home.

6. Choosing the right air filter

can not only make your home energy efficient, it will also lower your energy costs. Select a filter that is low resistance and high efficiency. If the filter you use is “sucked” into the space, you are using a filter that has too high a resistance. You’re actually making the system work harder; it’s like it is breathing through a small tube or having an asthma attack – the system has to work harder to cool your home. Less resistance is like breathing without asthma; it is smooth and efficient. We recommend the Aire Care filters which are low resistance and 84% efficient. Call us to learn more about these filters.

If you have questions or concerns about the energy efficiency of your home, please contact us at 480-648-2400 to schedule an appointment.