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An Engineer's Opinion

How to Buy a High Efficiency Air Conditioner

The world of air conditioning changed in 2006. We have higher required Seasonal Energy Efficiency Ratings (SEER), and are facing a change in refrigerant regulations. What does all this mean, and how will it affect you, now and in the future?

Buying home comfort equipment used to be simple, but with the new technology, mapping the course can be tough.

New air conditioning units offer lots of high-tech features and fancy electronic controls. You need an advisor you can trust who is up-to-speed on all the latest products to be sure you are getting the unit you need. You need an advisor that can give you the kind of advice that is going to deliver the comfort, health and safety that you are looking for in your home.

In 2006, during the transition to this new technology and regulations, there will be some confusion as there is old product still available. This product can no longer be manufactured, yet there is plenty of it in the marketplace.



Those selling older technology will make the argument that it's been around for a long time and will continue to be around for a long time so why shouldn't you buy it, especially if it is at a great price. So why shouldn't you? Read on as we help you understand how to buy a high efficiency air conditioner.

The Changes

There are two elements to the changes in air conditioning technology: SEER and Refrigerant. These changes, are forcing manufacturers to re-evaluate their products and make changes to meet these needs.

Changes in technology are vast and vary by manufacturer. Some include variable speed technology including DC compressors, motors and fans in certain high-end units. York is integrating some special coil technology called micro-channel which has been used in the automotive sector for years, into its air conditioners. We are seeing new materials to reduce weight. New configurations reduce sound. All of these changes can create confusion when buying new equipment.

We fundamentally have three types of air conditioners; the standard split system whole-house air conditioner; the ductless mini split unit (which is also required to adopt the new energy

efficiency standards) and the high-velocity attic systems such as a SpacePak which is only required to produce 11 SEER due to the technology inherent in this type of system.

Let's look at the two areas of regulated change: SEER and Refrigerant.

Seasonal Energy Efficiency Rating (SEER)

The minimum energy efficiency standards for air conditioning units is now 13 SEER and EnergyStar tells us that 14 SEER is the minimum level at which any government rebate programs kick in.

In the United States, all air conditioner units manufactured after January 26, 2006 must be a minimum of 13 SEER. In Canada, the manufacturing change must be made by April, 2006.

This means that all units manufactured before these dates will be of lower efficiency, and there will be many on the market for the summer of 2006.

Refrigerant

Compounding this is the change over in refrigerants. The world is changing from an R22 HCFC to an R410A HFC to reduce the impact of emissions on the ozone layer. This doubles the amount of product that is in the marketplace as there is product with both refrigerants out there.



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Add a refrigerant change to an efficiency upgrade and confusion multiplies quickly.

The implementation of the Montreal protocol on refrigerant change over requires that refrigerant production must decrease by approximately 2/3rds in 2010. In 2015 production of equipment using this refrigerant must cease and in 2020 no more R22 refrigerant will be produced. Since the average age of an air conditioner is fifteen years or longer we are at the point that an R22 unit, purchased in the summer of 2006 will not be able to get replacement refrigerant within its anticipated lifespan.

The Challenge

Although the new technology equipment offers improved efficiency in fuel consumption, it is not always compatible with older home comfort system components. As upgrades to new units are made, we will see many incompatibility issues when attempting to mix modern components with old components. Not only will there be some inability to achieve the energy levels promised in the equipment but there may actually be performance issues that result from these incompatibilities.

There will also be size issues as new coils and new outdoor units are larger. This creates issues getting them through gates and fitting coils on top of furnaces.

Typically, these new 13 SEER units are larger, however we will see all kinds of size differences. York has come out with a unit that is actually slightly smaller than their old 11 SEER and they priced it accordingly which makes it a very competitively priced 13 SEER product. Cost will also vary as some suppliers have been gearing up for this for some time and are much more prepared than some of their competitors.

What's in the Market?

Air conditioning units are going to become feature driven, much like the automotive industry.

In order to ensure that you select the right unit for your home, you must first clearly understand what it is you want out of an air conditioner. What is more important?

- esthetics
- low sound
- small size
- high degree of comfort
- low cost

Each of these feature points will drive a customer towards a particular brand and type of unit that will fit their particular need. Atlas looks at each customer's situation and recommends a product that suits the application and the objectives.

If you are interested in very high efficiency and outstanding comfort, it may be worth considering a two-stage cooling unit. These offer the best of both worlds. On low stage they provide excellent dehumidification at less than peak loads. At peak loads or above, a second stage will kick in and provide that extra bit of comfort so that the thermostat doesn't creep out of control.

Ensure that you work with a contractor that you trust to find the right solution for your home. Purchasing an air conditioner is no longer a simple task. It is only made simple when you purchase from Atlas.

After all, Atlas c.a.r.e.s.

*Roger Grochmal, P.Eng.
President – Atlas Air*

