

# Replacing Your Central Air Conditioning or Heat Pump System

## Consumers Guide to Choosing a Properly Matched System

Are you about to make an important investment in the comfort of your home – one that will affect your family for years to come? It's important to have all the facts before making your decision.

Central air conditioning and heat pump systems consist of two parts: an indoor (coil) unit and an outdoor (condensing) unit. These two parts are specifically designed to work together as a coordinated team to provide top performance and maximum efficiency and comfort. If you install a new high-efficiency outdoor unit, you must include a new properly matched indoor unit or vice-versa.



### Why a Proper Match is Important

Simply replacing your outdoor or indoor unit may offer you the lowest price, but it will not give you the best value. At best, the system may still operate, but it will not perform up to the promised energy efficiency rating or provide you with the level of cooling or heating comfort you expect.

When you consider the costs of repairing or replacing an air conditioner or heat pump, installing a new properly matched system makes good sense. It will reduce energy costs, provide a higher level of comfort; and with new warranties, years of worry-free operation. Repairing or installing an improperly matched unit can create undue stress on your system, which could result in premature failure.

## Reap the rewards...

### Obtain Government Grants and Utility Rebates

Qualifying for a rebate for installing a high-efficiency system in your home is one more good reason to make sure it is a properly matched system. Refer to the Office of Energy Efficiency website at <http://www.oee.nrcan.gc.ca/corporate/incentives.cfm?attr=0> or with your local utility to learn about the various rebates and grants available.

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### The Right Person for the Job

All air conditioning and heat pump systems must be installed by a qualified contractor. To find a qualified contractor, search for companies listed on the Heating, Refrigeration and Air Conditioning Contractors web site at [www.hracc.ca](http://www.hracc.ca). HRAC requires its members to carry relevant trade, fuel safety and municipal licenses as well as liability and workers' compensation insurances.

It is critical that the contractor make a visit to your home before providing a written estimate and to prepare a calculation (heat loss/heat gain) in order to determine the proper capacity (tons) of the equipment required to cool and heat your home. Heating and cooling loads should be determined using the recognized sizing method specified in the Canadian National Standard CSA F280. Your contractor should not simply assume that the size of the new system is the same as the old one. Do not rely on simple "rules of thumb" for sizing, but insist on a thorough analysis from the contractor. Proper sizing is very important. If the equipment is too large, you could experience increased costs and less comfort. The unit may run long enough to cool, but not long enough to dehumidify. If the unit is too small, it will not be able to keep your home adequately heated or cooled in extreme temperatures. In addition, the air handler or furnace must be able to accommodate the airflow. Ductwork, placement of the unit, electrical requirements and refrigerant lines must also be examined to ensure that they are compatible with the new system.

Finally, your contractor should spend time with you to explain how to select the right system. It may be easy to replace one piece of equipment with another. However, a good installation depends on careful analysis, close inspection, compatible components, professional installation techniques and homeowner education.

These elements will ensure a new air conditioning system delivers efficient performance for maximum comfort.

A qualified contractor will verify that the system being installed is properly matched and achieves a certified energy efficiency rating by providing you with an ARI reference number. The Air-Conditioning, Heating and Refrigeration Institute (AHRI) offers certification for performance of manufacturers' equipment. This is important because although a number of indoor units may 'work' with outdoor units, only matched ones will achieve a particular rating. An ARI reference number can be found by accessing AHRI's free online Directory of Certified Product Performance at [www.ahridirectory.org](http://www.ahridirectory.org).



## Ensuring High Efficiency

The Seasonal Energy-Efficiency Ratio (SEER) is a measurement of the cooling efficiency of an air conditioning system over the entire cooling season. The higher the rating, the more efficient the unit. As of November 2006, all newly manufactured central air conditioners and heat pumps must achieve a minimum SEER of 13.

The Energy-Efficiency Ratio (EER) is a measure of how much cooling effect is provided by the air conditioner for each unit of electrical energy that it consumes. The higher the EER, the more efficient the unit.

The Heating Seasonal Performance Factor (HSPF) is a measurement of the heating efficiency provided by a heat pump over the heating season. The higher the HSPF, the more efficient the unit.

ENERGY STAR is an international symbol that is applied to products that meet or exceed high levels of energy efficiencies. An ENERGY STAR qualified air conditioner or heat pump must be a matched system that meets a minimum SEER of 14 and an EER of 11.5. The HSPF level to qualify as an ENERGY STAR heat pump is 7.1. New levels will come into effect January 1, 2009, the minimum SEER of 14.5, an EER of 12 and the HSPF level of 7.1 will remain the same. Today's ENERGY STAR qualified central air conditioners use approximately 20 per cent less electricity than conventional units.

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## Learn more about Comfort Cooling

Visit HRAC's web site at [www.hrac.ca](http://www.hrac.ca) and learn about indoor comfort systems, proper maintenance, saving energy and how to find a certified technician.



HRAI is a non-profit national trade association of manufacturers, wholesalers and contractors in the Canadian heating, ventilation, air conditioning and refrigeration (HVACR) industry. HRAI member companies provide products and services for indoor comfort and essential refrigeration processes. HRAI is a leader in industry training and technology transfer providing members with the technical competence required to design and install HVAC systems.