

# Choose the Right Size of Air Conditioner, Furnace, Heat Pump or Boiler to Fit Your Home

## *It is Essential!*

**W**hen considering adding or replacing air conditioning or heating to your home, insist that the installing contractor “sizes” the system properly. A qualified contractor will not recommend equipment size based solely on the size of your home or assume that your existing equipment was sized properly in the first place. Be sure to also tell your contractor if you plan to renovate in the near future. Changing windows, upgrading insulation levels, finishing the basement, air-sealing or a new addition will impact the sizing calculation for any new system.

To complete the design load calculation, the contractor will need to take measurements during the initial visit to your home and ask some questions. They also take into account:

- Local climate conditions
- Size and number of windows that let in heat from the sun
- Existing insulation levels of the home
- Number and lifestyle of your home’s occupants
- Predicted or known air exchange rate of home

There is only one correct size of equipment for your home. Not only will a unit that is too big turn on and off more often, which is annoying but over-sizing equipment can result in increased fuel consumption and higher operating costs which is inefficient and can contribute to premature part failure, higher noise levels and reduced comfort (hot or cold spots within the home). You need just the right size! Under-sizing of equipment will also cause severe comfort problems. Ideally, the equipment should be designed within plus or minus 10% of the required size.

So hire a contractor that has the appropriate skills to perform a “heat loss and heat gain calculation” based on professional guidelines, to calculate the proper size of heating and cooling equipment that your home requires. A good estimate will take several hours. Do not agree to a simple “rule of thumb” calculation (e.g., X amount of BTUs per square foot). Be sure to request a ‘heat loss and heat gain calculation’ as part of your purchase process.

When a contractor completes the heat loss and heat-gain calculation and determines your needs, be sure to purchase the right equipment, and not stock that the contractor happens to have sitting on the truck or back at the shop.

There is a Canadian Standards Association (CSA) standard on how to properly size equipment. It is called “Determining the Required Capacity of Residential Space Heating and Cooling Appliances”, CAN/CSA F280-M90 (1998). This standard is also referenced in building codes.

For more information on equipment options and tips to help make an informed decision, visit the information library at the Heating, Refrigeration and Air Conditioning Institute of Canada website for homeowners at [www.hrac.ca](http://www.hrac.ca). You will also find information on how to choose a qualified contractor.