

GREEN TECH THE SERIES COLUMN FOR JULY 13, 2016

HEADLINE: ROOM AIR CONDITIONERS: KEEPING YOU COOL!

A couple of weeks ago I wrote a column on advanced air conditioning systems with specific attention to mini-split systems. These systems are now the darling of the conditioned air industry; compact, efficient and adaptable to any home, ducting or not. I received a number of e-mails that said in so many words that these are nice, but what about those who cannot afford this or simply live in a smaller home where a window or portable air conditioner may do.

In the US, it is estimated that Americans will buy over 6.5 million window and portable air conditioners this year. While there is no similar Canadian study available, one can bet it's a substantial number. These portable or, somewhat, portable units are an option if central air is not. It is estimated that up to 13% of most home income is spent on the annual electrical bill and this figure will only continue to climb in Ontario.

If you have been following this column, you may know that I built a B&B and Day Spa last year, which Donna and I operate. For energy efficiency, we went to a significant level of quality assembly, insulation and air seal and elected to use electric heat given the air tight assembly. The B&B is about 600 square feet and the spa is just under 900 sq.ft. With the anticipated heat wave this year, we decided to add air conditioning for the comfort of the guests. I installed one window unit in the B&B and one portable unit in the spa. I did considerable research, figuring the chance I would find Energy Star rated units limited at best. In fact, window units are available with this rating, though the portable units I researched in Canada are not.

Energy Star rating for window units means they have an energy saver mode that helps reduce the hydro bill. The unit operates somewhat the same as a central unit, by turning on and off at different intervals to ensure the room temperature stays at the set temperature. They are called room air conditioners and that is exactly it, as sizing is important for the unit to be effective. There are dozens of sizing charts on the internet, but a quick 20 BTU for one square foot of floor space is a good guide. This means an 8,000 - 10,000 BTU window unit will cool around 400 square feet. There are other factors that are rarely considered, but should be when sizing a window unit. If the room is well shaded, reduce your number by 10%, in contrast to when the window is extra sunny, in which case, add 10%. If more than 2 people occupy the room regularly, then add 600 BTU per person and if there is a kitchen present, add a minimum of 4,000 BTU.

Now that you have decided to buy a window unit and have your sizing figured out, there are some more things to consider. Frigidaire, LG, Some Gree and Noma models are all Energy Star rated. Spend the few dollars extra on an Energy Star model and expect they will reduce the operating cost by upwards of 10-15% vs. a conventional model. While you are shopping, do not be fooled by the selling feature comment, "We use R410 Energy Efficient Coolant," because every air conditioner sold today must use this refrigerant. Look for one that is as close to a SEER or EER rating of 12 and with a decibel rating less than 60. This is about the level of normal conversations; 50 is the rating in an average urban library. Over 60 is simply noisy. While sleeping at 50 may be doable for some, over 60 is unlikely. Better window air conditioners have some good features. Sleep mode is one; this allows the temperature to rise a few degrees over the evening, saving some energy. Features like clean air ionizer and simple access to the filter for cleaning are nice benefits, while a clean filter allows the unit to operate efficiently. A remote control is a nice plus, along with adjustable directional vent fins. In fact, some high-end models are now compatible to your smart phone. Pay attention to the warranty, some have much longer warranties than others.

Once you have bought your unit, take the time to install it correctly. Installation is not difficult for most models, other than the larger units that need cabinet support on the exterior. Whether you have sliders or single or double hung windows, measure the size with the window fully open. If you have slider windows, you will likely have to build some form of secure wood filler above the window. There are some vertical window units for slider applications; again, sizing is important. Casement windows are simply not adaptable. The Energy Star units have better window kits, with insulated panels and foam seals. Make sure it's fitted and secured; there are hundreds of stories of window units falling out with unfortunate injuries to people and property.

Portable Air conditioners have become popular for that reason; they can be moved around. Sometimes window access or, in some cases apartments, will not allow window units hanging out the window. As noted, none of these are Energy Star rated in Canada. In this case, buy the features; they should both dehumidify and air condition. The controls should allow operation with timers and optimum settings. Consumers reports found the BTU ratings on these units were inflated and they used more energy than a similar sized window unit.

What did we settle on? We bought a small 5000 BTU Energy Star Noma window unit for the 600 sq. ft. B&B. You will recall that I recommend 20 BTU's per 100 sq. ft. and, with that, our 5000 BTU unit should only cool up to 250 sq. ft. This is a

testament to a very well insulated B&B and this little Noma unit is doing just fine during the current 30 plus Celsius days. For the portable unit in the Spa, I settled on a 12,000 BTU Danby. It had the right options and, while I suspect it's really only capable, in a regular home, of cooling about 600 sq. ft., in our nearly 900 sq. ft. Spa, it does a great job. Again a testament to an advanced building. Yet another reason to build it right, insulate it tight and seal it fully.

For comments and questions, Cam Allen L.I.W. NHI ACI can be reached at alltechconsultinggroup@gmail.com