

The expected heating system

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Heating cost is the main roll on our home bills especially in the long lasting winter of Canada. Even in the mild BC lower mainland, we have great chances to turn on the heat during June & September. At this stage, home owners have no choice to watch the bills kept ascending. Moreover, the requirements of electricity and non-renewable resource gas are going up due to the economic development. Therefore, we all expect the new heating system emerging, which is more economical, environment protected, reliable and less energy consumption.



Heat pump could be a technique complied with the above requirement. If you are not familiar with the word Heat Pump, we could call it cold & hot 2-way air conditioner. You may ask that this has to consume the electricity and it is not cheap to buy & install. That is right but for the usage of compressor and the circulation of refrigerant the efficiency of electricity has been improved. It is about 6-9 times heat supplied on the consumption of the same power as that of regular baseboards. Plus the refrigerant circulation without any leakage, the heat pump can run without other consumption. In addition, the core component compressor has been maturely developed, which is structurally simple and reliable. We can expect the life expectancy over 15 years. Furthermore, because of the split installation the noisy compressor is normally in the exterior, it does not interfere with the comfort of the inhabitants. The interior evaporator/condenser can be installed downstream of the furnace heat exchanger or independently at the attic. For the advantages many high end condos and detached houses have adopted this technology. Also, it is regularly added auxiliary heating facility on the side of heat pump. This is because the limitation of the capability of its principle and variety of the exterior weather condition. The principle of HP is similar as the reversed AC. The refrigerant temperature goes up to 160 F after going through the compressor, and then passes the interior condenser. The room air blown over the condenser core can be heated up from 70 F to 90 F to supply the heat to interior space. On the other side, the refrigerant is cooled down to 110F to be liquidized. Afterwards, it is pushed to expansion device and further decreased to 20F, and then past the exterior evaporator and absorb the heat from the ambient 40-50F air, finally turned back to compressor at 35F gas state. The heat is generated by this repeated circulation. We can notice that the exterior temperature and the capability of compressor are critical to the heat supply. Some extreme cold weather can cause the difficulty in design the compressor & the whole system. Now it is barely to get satisfaction of heat supply based on sole heat pump. Therefore, the auxiliary heating device is a second choice.

But, we expect the sooner heat pump could be widely applied with the fast development of the technology.