The following 11 point check list is intended to provide guidance to consumers by defining minimum expectations as it relates to your health, wellness and comfort system.

The 11 point check list has been adapted from the ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy. Reprinted by permission from the American Society of Heating, Refrigeration and Air Conditioning Engineers.

1. The contractor responsible for your health, wellness and comfort system should provide the design criteria of the system in terms of indoor temperature and humidity, including any tolerance or range, based on stated design outdoor ambient conditions and total indoor loads, should be stated. Values assumed for comfort parameters used in calculation of design temperatures, including clothing and metabolic rate, should be clearly stated.

**Why should you expect this?**

In order for you to be satisfied by your system, a designer must evaluate your thermal comfort needs, not the needs of the house. Ideally you as a home owner should insist on dealing with the designer responsible for your health, wellness and comfort. The reason for this is to ensure the right assumptions are made about your physiology. If you, or members of your household have special needs these need to be addressed at the early stages of design.
2. The contractor responsible for your health, wellness and comfort system should provide the system input or output capacities necessary to attain the design indoor conditions at design outdoor ambient conditions should be stated, as well as the full input or output capacities of the system as supplied and installed.

**Why should you expect this?**

In Canada and in parts of the United States, local building officials require detailed design information related to the mechanical systems in your home before a permit is issued. This detailed information is defined in several references including ASHRAE Standard 55 and 62, CSA B214 and F326, and the Radiant Panel Associations, Standard Guidelines. The outputs should be based on a zone by zone or room by room basis and include performance specifications. This would also include the input for the heating and cooling plant and domestic water systems. It would also address the ventilation and humidity specifications.

3. The contractor responsible for your health, wellness and comfort system should provide the limitations of the system to control the environment of the zone(s) should be stated whether based on temperature, humidity, ventilation, time of week, time of day, or seasonal criteria.

**Why should you expect this?**

There may be justifiable reasons why your system may be challenged in rare circumstances. This might be due to extreme weather conditions, equipment limitations, system capacity, code requirements etc. Whatever the reasons they should be defined in writing so that you and the contractor have an understanding and agreement to these limitations.

4. The contractor responsible for your health, wellness and comfort system should provide the overall space supplied by the system should be shown in a plan view layout, with all individual zones within it identified. All registers or terminal units should be shown and identified with type and flow or radiant value.

**Why should you expect this?**

By providing this information there is no questions as to what is or is not to be conditioned. In the event of discrepancies you can reference this information as required.

5. The contractor responsible for your health, wellness and comfort system should provide the significant structural and decor items shown and identified if they affect indoor comfort. Notes should be provided to identify which areas within a space and which locations relative to
registers, terminal units, relief grilles, and control sensors should not be obstructed in order to avoid negatively affecting indoor comfort.

**Why should you expect this?**

There are many difficult challenges in home construction often leading to give and take scenarios which can influence the performance of a system. This might include things like fireplaces and home theatre equipment which when operating can disable a heating system and in some cases require the cooling system to operate even though it may be winter. Another example might be a highly efficient home heated with radiant floors. Very efficient homes do not require floor surface temperatures above your skin temperature. This means if you were expecting to feel warm floors they in fact will feel cool even though they are heating the space. You may have furniture or old antiques which are sensitive to changes in humidity. It may be required to operate with humidity levels higher than required or necessary for comfort and in cold climates this possibly leads to frosting of windows. It is very important to never take anything for granted or assume that others will take responsibility for these issues. You can always tell a competent contractor by his thoroughness in this specific topic. Use it when evaluating which contractor to pick.

6. The contractor responsible for your health, wellness and comfort system should provide the areas within any zone that lie outside the comfort control areas, where people should not be permanently located, should be identified.

**Why should you expect this?**

Occasionally architectural layouts or your own requirements make it difficult or unnecessary to maintain comfort levels. For example you may want to have a wine cellar located in the basement. This is not the place to use floor heating! This would apply to any cold storage area. A back or service entrance which is rarely used may also be considered an area outside the comfort control zone. Garages typically fall into this category but if you use your garage as a work shop this
should be specified. In some climates or for some customers it may be necessary to provide ventilation and drainage in garages. There is nothing pleasant about a garage with high humidity and puddles of water resulting from melting snow on a over heated floor.

7. The contractor responsible for your health, wellness and comfort system should provide the locations of all occupant adjustable controls should be identified, and each should be provided with a legend describing which zone(s) it controls, which function(s) it controls, how it is to be adjusted, the range of effect it can have, and the recommended setting for various times of day, season, or occupancy load.

**Why should you expect this?**

A system designed for you the occupant is different than a system designed for the building. The building won’t complain if it’s too hot, too cold, too dry etc...but you will! You need to know what is making your system “sing and dance” to your satisfaction and this begins with knowing where the controls are and how they work.

8. The contractor responsible for your health, wellness and comfort system should provide a block-diagram control schematic with sensors, adjustable controls, and actuators accurately identified for each zone. If zone control systems are independent but identical, one diagram is sufficient if identified for which zones it applies. If zones are interdependent or interactive, their control diagram should be shown in total on one block diagram with the point(s) of interconnection identified.

**Why should you expect this?**

When you buy any electromechanical device, a fridge, stove, washing machine etc., you get a block diagram illustrating all the parts and wiring. You may never understand this stuff or use it - but at some point the original contractor or a contractor unfamiliar with your systems will need to know how the equipment is wired and controlled. This is why we recommend you insist to your builder that he uses manufactured assemble systems like those from Uponor Wirsbo or Danfoss or others of like quality. Both of these global companies have been around for a long time, have distribution all over the globe and are widely recognized through industry. The systems these companies manufacture come complete with standardized block diagrams unlike job site assembled systems which are custom and in many cases one of a kind installations. These on the job system can be works of art and as long as the artist is around to service and repair them it is not a challenge. But should the original installer/designer ever leave the industry you will be faced with less than an ideal situation on the next service call. Think of going to a trusted family doctor for decades then having him retire or die and now you are faced with...
having to go to a new doctor not familiar with your body...its the same deal.

9. The contractor responsible for your health, wellness and comfort system should provide the general maintenance, operation, and performance of the building systems, followed by more specific comments on the maintenance and operation of the automatic controls and manually adjustable controls and the response of the system to each. Where necessary, specific seasonal settings of manual controls should be stated, and major system changeovers that are required to be performed by a professional service agency should be identified.

Why should you expect this?

A health, wellness and comfort system often times exceeds the price of a new car. The new car manufacturer wouldn’t consider shipping out a vehicle without a maintenance and operation manual and nor should you expect to have a system without a book telling you how the equipment operates and when it needs general service.

10. The contractor responsible for your health, wellness and comfort system should provide specific limits in the adjustment of manual controls. Recommendations for seasonal settings on these controls should be stated, along with the degree of manual change that should be made at any one time, and the waiting time between adjustments when trying to fine-tune the system. A maintenance and inspection schedule for all thermal environmental-related building systems should be provided.

Why should you expect this?

There are limited circumstances with today’s technology where you have to make manual adjustments. Some items might be the thermostats and humidistats or possibly the weather compensators on boilers. All other manual adjustments such as balancing valves or balancing dampers should take place in the start up and commission phase of the installation. Some minor adjustments during the season may be necessary such as floor registers etc.... Once a system has been commission to your satisfaction both you and the contractor should sign off on its operation.

11. The contractor responsible for your health, wellness and comfort system should provide assumed electrical load for lighting and equipment in occupied spaces (including diversity considerations) used in HVAC load calculations should be documented, along with any other significant thermal and moisture loads assumed in HVAC load calculations and any other assumptions upon which HVAC and control design is based.
Why should you expect this?

The contractor has very little control over how you will live in your home this includes the number of hours using a fireplace, home theatre system, spa, steam room, hot tub etc...so its important that you and they discuss your potential use of electrical devices so they can be accounted for in the design.

Commissioning

The heating, ventilation and air conditioning system designed and installed to manage your health, wellness and comfort should be validated to demonstrate that the building systems can be operated to meet the thermal environmental condition requirements according to the design intent and under design conditions inclusive of less severe conditions.

Summary:

A competent team of designers, builders and sub contractors exchange their skills and talents for your money with one objective in mind. To keep you healthy, well and comfortable in your place of solitude. Use the 11 point check list as a guide to help you decide on the competancies of those wanting your dollars.

Fundamental Beliefs

Design for People
Design for Simplicity
Design for Familiarity