



*Stephen's Healthy Housing Column*

## **Building Biology A Detailed Look Part 1**

*Stephen Collette, BBEC, LEED AP*

Stephen Collette is a Certified Building Biology Environmental Consultant (BBEC). This lengthy certification analyses the built environment and how it impacts people's health. Stephen was a natural builder for 5 years specializing in straw bale construction. Stephen has an engineering background and training which enables him to understand the various processes occurring within the home and how they can interact. Applying these skills and knowledge to the standard home and small office enables Your Healthy House to find the reasons for poor indoor air quality and to create solutions to help create your healthy house.

Stephen Collette is a Leadership in Energy and Environmental Design - Accredited Professional (LEED AP), which allows Stephen to use the Canada Green Building Council's guidelines and method to ensure a quantitative approach to building

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In the last article, we looked at Building Biology or Bau-Biologie as a process and a school of thought that may be helpful for those with environmental illness and multiple chemical sensitivities. Building Biology looks at the built environment, how it interacts with occupants and how the building interacts with the environment as well. In this article I will explore more in depth what the first half of the 25 principles might mean to someone with MCS and how they may be helpful.

## **Building site without natural and human-made disturbances**

Living over top of a uranium deposit, or geopathic stress or how about running underground water? These elements and others can impact your health. These elements can be measured by a professional, but until that time, do some research to find out about what is on your property, below you through local resources.

## **Residential homes away from sources of emissions and noise**

Studies have shown that if you

are closer to a major highway, your health is impacted. We all know that living near factories is typically not as healthy as living in a nice treed property. Consider what is up wind of your house, such as small factories, commercial properties, etc. Many cities have a right to know policy that maps out what commercial activities are going on in what locations. Sound plays a major role in comfort. If you cannot control external sounds, mitigate it with good windows, or sealing windows, and turn off appliances indoors that vibrate at lower frequencies.

## **Low-density housing with sufficient green space**

## **Personalized, natural, human- and family-oriented housing and settlements**

This is from Germany originally, and it sounds like promotion of urban sprawl, but it is more about living in neighborhoods that are designed to have some walkable spaces, appropriate density and lots of greenspace, mixed use, with a bit of retail, home-based businesses, and families, all worked into a master plan. Think about some great intentional communities or a great old city neighborhood for example that have everything you need at hand.



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### **Building without causing social burdens**

Build a healthy house so that people are not getting sick in crappy structures, and don't need external support, because they are positive and active members of their society. Now isn't that a novel idea?

### **Natural and unadulterated building materials**

The healthiest building products are not products, but are materials, natural materials like clay, straw, stone, lime, wood and such. Surrounding yourself in petroleum-based building materials that offgas for years or have been chopped into dust and glued back together with chemicals, isn't healthy and never will be. We need to stop building that way, and return to the more durable, vernacular natural building.

### **Natural regulation of indoor air humidity through humidity-buffering materials**

As we build our homes tighter to control energy loss, we need to deal with the moisture that we generate indoors safely. Dehumidifier work, but cost us money to operate. How about building materials such as clay, that can absorb moisture from the air, hold it safely (unlike wallboard) and when the air becomes drier, turn around and release the water vapor back into the air. This takes the highs and lows of moisture content out of the air and creates a more comfortable space to live in, and is more durable.

### **Low total moisture content of a new building that dries out quickly**

Have you ever seen a construction site where the half built building is sitting out in the rain? Have you thought that was a good idea? Well it isn't. That moisture will come out of the wood at some point and if it's open to the air, it will dry, but if it's wrapped in plastic and air barriers and insulation then those will get wet inside your wall, and that just is bad practice.

### **Well-balanced ratio between thermal insulation and heat retention**

All the green building programs looks at thermal insulation as the be all and end all. Well thermal mass, which is the ability of the house to store that heat somewhere in some thermal mass, and release it for free later, when you need it, like at night, or in the winter, depending on the region you live in. Wow, using the building like a battery with all the free solar energy, how simple is that?



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### **Optimal air and surface temperatures**

We think that knowing the air temperature in a room, we know everything we need for comfort. Unfortunately that’s not true. Temperature varies by height, and we prefer warmer feet over warmer head, opposite to what we have in our homes. Also we prefer warmer surfaces and cooler air, which is difficult with forced air systems.

### **Good indoor air quality through natural ventilation**

Buildings for centuries have used their own design to help heat and cool, through the use of stack effect or building pressure. Now we seem to have forgotten that basic knowledge and simply plug in an air conditioner, furnace and mechanical ventilation burning energy for no reason other than lack of brain power. “Rudimentary” civilizations figured this out centuries ago.

### **Heating system based on radiant heat**

Forced air is one of the silliest forms of heat, as we don’t actually like it biologically. We prefer warmer surfaces and cooler air temperatures, delivered radiantly, like as in the sunshine, warm rocks and fresh air. So using radiant heat in our homes will dramatically improve your well-being and comfort, and also saving energy!

In the next article I will look at the second half of the Building Biology Principles and how they may help you in finding a healthier home.

To learn more about Building Biology, please have a look at the International Institute of Building Biology and Ecology’s website at

<http://www.buildingbiology.net>

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