

GREEN TECH THE SERIES COLUMN FOR AUGUST 17, 2016

HEADLINE: HOW TO BUILD AN ENERGY EFFICIENT HOME; PART FOUR

This is the last column in this series, one which has generated considerable reader questions and comments. There is a need for the home buying or building public to understand the process and a number of readers expressed this to me. If you have missed a part of this series, send me an e-mail and I will send you the entire four-part series.

This week, we look at “green building materials” and some of the parameters that most sustainable builders accept. In one sentence, any material that is used in the assembly of the home that reduces the impact on the environment is considered a green product, be it lumber, insulation, siding, flooring or any related material. This heading also includes all natural materials that require no or minimal processing and grow rapidly like bamboo, cork and any wood certified by the FSC (Forestry Stewardship Council). The 100 km rule was and still is popular for locally grown and sawn lumber. The reason behind this is simple; while bamboo, for example, is a natural product, getting it from Asia involves extensive shipping and transport, all of which require fossil fuels.

When we built our Spa and renovated the church, (www.alltechgreenchurch.ca) we used locally grown and sawn pine and cedar for 100% of the interior walls and timber frame. Another sustainable option is using materials with a recycled content; example the steel studding we used contained a portion of recycled steel. There is still a bit of confusion with the terms recycled and reusable. Recycled materials contain a percentage of reclaimed material in their manufacture, whereas reusable means the product may not contain recycled material, but can be recycled once the product arrives at the end of its lifespan. Manufacturers who operate an efficient assembly process by reducing their energy and waste are often referred to as resource efficient producers.

Toxicity has become a real concern today and rightfully so. Most natural materials are toxic free or greatly reduced in toxicity. Some products like paints that are low or no VOC (Volatile Organic Compounds) are popular today. In fact, any material that emits no carcinogens, irritants or reproductive toxicants is considered non-toxic. One chemical, called Formaldehyde, is so widely used it is in nearly every home by means of a huge list of materials: paint; glue; paper; cleaners; furniture; plywood and some plastics. Formaldehyde can cause irritation to your eyes, nose and throat. Long term moderate exposure can cause allergies and other health issues for children. This colorless gas can be caused by an

improperly maintained wood stove and even new sheets or mattresses will contain this gas. When painting or using glue or adhesives, like gluing down a vinyl floor, the simplest way to remove any concentration is to ventilate the home.

Some wood can be toxic; usually it's the dust created from cutting. I can no longer be around white cedar, as I have a reaction to the dust. Most toxic wood is used in fine furniture; black cherry, for example. Some ash is an irritant, however most wood used to assemble a home today is low in toxicity. Most of the pressure treated wood sold in Canada today uses the new "MicroPro" formula in its process. The pressure treated manufacturers still use the second generation blend of chemicals, but the copper is now microscopically ground and forced into the wood where it cannot release over time. This process was approved in late 2012 and we started to see this lumber in the building department in 2013. If you have concerns over the wood used in your home, go to www.wood-database.com. They have an excellent listing of nearly every wood used in production today.

Another chemical known as PBDEs (Polybrominated Diphenyl Ether) is added to a lot of plastics, upholstered furniture and most products containing foam. There is limited evidence of the effects of this chemical, which is used as a fire retardant. Proper ventilation is on the top of the list for a sustainable home. It must have a mechanically operated system, be it an HRV or the next level called an Energy Recovery Ventilation System.

The last item to mention is home automation and this convenience has rapidly evolved in most new sustainable homes. This topic could take many weeks to cover with all the technology available. In a capsule, home automation allows you to remotely operate lights, HVAC and security systems in most entry level systems. You can evolve to automated operation of your window blinds, feed your pets with predetermined food from a computer controlled container, have the coffee ready when you wake up and even open your garage door with a voice command from your cell-phone. You can start simple with motion sensors, light timers and some entry level packages allow you to use a remote control from anywhere in the home to activate a power outlet. The sky is the limit today and the big players like Microsoft and Google are just starting to get on board here. Some time on the internet will show dozens of systems at all price levels. When I did the church, we installed a controller that allows me to operate our HVAC system from my phone. I have not used it as yet, as the programmable thermostat is doing just fine.

My last comment on building a sustainable home is evaluating the return on your investment or the law of diminishing return as they call it. One example is insulation; at what point is that extra inch worth the cost? Look at your home as a live-in system, one that you can afford to not only build but maintain. Energy efficiency, durability, economy of the assembly and overall internal health of the home for those who occupy it must be balanced to provide a shelter that will protect both Mother Earth and your family.

Cam Allen L.I.W. NHI ACI can be reached at alltechconsultinggroup@gmail.com for any questions or comments.