



Eco-Sense
3295 Compton Road, Victoria, BC
Building and Safety Policy Branch Tour
June 25th, 2008

On June 25th, 2008, we met with Provincial regulators to discuss the policy barriers encountered during the process of building one of the most sustainable homes in North America.

Also present was Chris Leek, (Building Official – District of Highlands) and Kris Dick, (Structural Engineer – Building Alternatives and University of Manitoba).

Gord and I lead the tour of our home and systems. We followed up the tour with a policy discussion in the circle room. The following is a summary of the **policy barriers and discussion points** from our perspective:

1. Requirement to install a septic system (in order to obtain a building permit) when it will not be used.
2. Requirement to install a flush toilet (and then remove it) to show working system. Eco-Sense composting toilet based on the system described in “The Humanure Handbook” by Joseph Jenkins is not approved. The plumbing code has nothing to say about this simple system as it is not considered a plumbing fixture – no water entering and no drain or outlet. Discussed the possibility of being “Flush Toilet Ready” rather than installing an entire system that will not be used.
3. Requirement to plumb grey water into an approved waste water system. Discussed that waste does not exist in a sustainable home. Proper terminology would be “resource water”. The Eco-Sense grey water system is based on a branched drain system as described by Art Ludwig in his book “Create a Grey Water Oasis” is not approved. An additional primary grey water filter (worm bio-filter) created by Ann Baird is not a CSA certified system. Discussed the need to require all new construction to be “Grey Water Ready”. For the building code, need to identify safety objectives for using grey water and write this into the code rather than attempting to describe every possible grey water system. Discussed that there cannot be a simple prescriptive solution as each system will be site specific. Look to other jurisdictions for guidance. (Arizona, New Mexico, Texas, etc)
4. For sustainable energy systems (solar PV, Wind, etc) the building permit fee is based on the entire install. For example the cost of all the future electricity (solar panels, inverters, etc) is included in the permit fee rather than just the cost of regular wiring and components.



5. Lack of code as it relates to DC systems. As more individuals begin generating more of their own power (distributed grid) and feeding back into BC Hydro with a net meter there will be more use of DC circuits in the home. Need to expand this section of the code to give electrical inspectors more guidance. DC is a much more efficient form of energy for things such as compressors (fridges) and pumps. Inspectors have very little code here which leads to huge variations amongst individual inspectors.

6. Few policy requirements for energy or water efficiency. The social aspects of policy must come from a higher level as it is not the mandate of the BC building code to protect individuals from the impacts of the built environment as it relates to climate change. The building code is meant to protect from direct effects and not indirect effects such as depleted ground water, excessive energy consumption leading to environmental degradation caused from energy production, or toxic chemicals released into the environment (both locally in the home and globally) from the manufacture of such required building items. (PVC wires for example)

7. Discussed the need to be “Solar Ready” as it relates to solar thermal and solar PV.

8. Lack of CSA policy for many more sustainable products both high tech and low tech. The requirement of a CSA stamp on just about everything relating to plumbing and electrical can be a real barrier. Obtaining CSA approvals is a slow process but need and technology are moving quickly. The building code should reference the applicable product standards from other organizations, such as ISO, in order to enable the use of products that are not CSA certified. Examples are El Cid DC pumps, Mazdon solar thermal evacuated tubes, 120 gallon double coil heat exchanger solar hot water storage tank, DC or AC LED lighting, DC actuator valves, and super efficient appliances such as our DC chest fridge made in the US just to name a few.

9. Lack of policy as it relates to alternative wall systems such as Cob, straw bale, rammed earth, light clay, etc. Discussed the difficulty in creating prescriptive policy for natural building because of the very nature of this method of building. Until there is more peer reviewed data and standardization of these methods, engineering of each structure will likely be required. This method of building also has limitations here in British Columbia as it is not currently possible to become a builder as one is required to register with the Home Protection Office (HPO) which requires insurance. Currently not possible to obtain insurance as a builder. Owner builders are the only way to go at this time. An engineered structure removes liability from the district issuing the building permit.

10. Liability. The legal concept of “joint and several” was discussed. If a participating municipality through its building official approves something they may end up being held entirely responsible for a failure even if an engineer has stamped the plan or solution. Discussed of the possibility of an individual home owner putting something on the property title taking full responsibility for an alternative solution. Even in this situation “Joint and Several” may come into play.



11. The section of the building code which allows Alternative solutions to meet the safety objectives of the code has been a very useful tool. It needs to be expanded both in the functional objectives and to include a process for both inspectors and solution providers to follow. It was noted that many inspectors assumed that an engineers stamp was required here but in fact this is NOT the case. An individual may write and alternative solution to meet the functional objectives of the code without utilizing the services of an engineer. Few inspectors are clear on how to use this new section of the code and that is where a clearly defined process will be useful.

12. Discussed the need to share information or create a data base on all the alternative solutions being used so as to facilitate the process for others following. Identified two main barriers to this knowledge transfer. The costs to set up and manage this data base and the protection of “Intellectual Property” by engineers and individuals writing “Alternative Solutions”.

Summary

We have had relatively few barriers to building more sustainably as we have made use of the alternative solutions section of the code as well as obtained the services of a structural Engineer for our load bearing two story cob home.

The key for us through the entire process was a building inspector who was interested in sustainable solutions and working with us to achieve our goals. We noted that in discussions with others who are attempting to build more sustainably that there is a large variability in inspectors due mostly to lack of “green” knowledge and comfort among the building officials.

Greening the BC Building code must include education for inspectors as well as creating greener policy guidelines and functional objectives.

Probably the most significant barriers are social aspects related to climate change not currently being integrated into the code. This mandate must come from higher up. There is only so much that policy makers can do when mitigating climate change is not part of the building codes mandate. Inclusion of these social aspects would manifest as water and energy efficiency, local non toxic materials, passive solar design requirements, designing homes for the future, grey water ready, solar ready, and the list goes on.

We plan on continuing with their educational tours and will plan some tours for building officials once the home is fully complete.

Ann Baird
BSC Biology