



# INTEGRAL CONSULTANTS

"WE OFFER PEACE OF MIND THROUGH KNOWLEDGE AND EXPERTISE"

**NEWSLETTER**

Special Edition 2011

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## SPECIAL REPORT

**CHANGES TO PART 10 of the BC BUILDING CODE and EMERGING GREEN TECHNOLOGIES**

In October of 2011, the introduction of EnerGuide 80 for new home construction will become mandatory under the British Columbia Building Code. Up to this point when it was first introduced in 2008 under the National Building Code, it was voluntary with the province.

In 2008, the plan was to start the "Greening" process which it has done with a number of building products, and garbage recycling.

An EnerGuide rating shows a standard measure of a home's energy performance. It shows how energy efficient a home is exactly.

The rating is calculated based on standard operation assumptions so that one can compare the energy performance of one house against another.

The home's energy efficiency level is rated on a scale of 0 to 100. A rating of 0 represents a home with major air leakage, no insulation and extremely high energy consumption.

A rating of 100 represents a house that is airtight, well insulated, sufficiently ventilated and requires no purchased energy on an annual basis.



### Typical Energy Efficiency Ratings

Type of House	Rating
New House build to building code standards	65-72
New house with some energy-efficiency improvements	73-79
Energy-efficient new house	80-90
House requiring little or no purchased energy	91-100

For a brand new house, a rating of 80 or higher is excellent.

The first steps taken for the building component plan in 2008 were

- Increase insulation levels for small structures
- Provided and alternative, performance path to EnerGuide 77
- Adopted ASHRAE 90.1 (2004) for larger buildings
- Low-flow toilets and other water saving plumbing fixtures
- Announce further changes coming including grey water recycling and lighting sensors

The next steps are

- Target EnerGuide 80 for new homes by 2010 (coming this October)
- Pursue energy labeling of homes at time of sale for all new and existing homes with pilot programs in some selected communities (coming this October)
- To have self-sufficiency energy by 2016 in all new homes
- To have 100,000 solar roofs by 2020 with solar thermal used to offset hot water costs; solar photovoltaic (PV) used to generate power; and some grants and incentives will be available for this change
- Target EnerGuide Zero (100%) for new homes by 2020
- Supply 50% of new water demand through conservation which cannot be implemented by code alone because the Building & Safety Standards Branch, the Ministry of Environment and others have to develop a frame work to accomplish this. Along with this, treatment standards such as CSA B128.3 (Fall 2010) of the revised code; the code will allow use of non-potable water systems; and the code will require connection to a centralized system, if present for this. Purple pipe is not mandatory yet but will be added to the code once the other entire infrastructure is in place.

There are two ways to obtain energy, either

1. Buy it (i.e. BC Hydro), or
2. Get it for free (i.e. Homegrown – solar panels, wind turbine)

Now couple this with reducing energy consumption in the home by utilizing

- More efficient mechanical systems
- More efficient electrical devices
- More efficient lighting, and
- More insulation through higher efficiency windows, improved air tightness, heat recovery ventilators and reduced thermal bridging

You will have produced the EnerGuide 80 requirements, by using the tools for this energy efficiency which are

- Windows
- Heat Source
- Heat Pumps
- Air Tightness
- Heat Recovery Ventilation
- Solar
- Energy Efficient Lighting
- Alternative Structural Systems, and
- Advanced Insulation Systems

All of which means increased costs in building construction that may or may not be considered as code up grade and the principle of substitution will apply because the component that is being replaced is now obsolete. Therefore the PRINCIPLE OF SUBSTITUTION comes into play when an economic principle is stating that the price of a commodity tends to be no higher than the price of a substitute having equal utility, available without undue delay. This is the basis of the Replacement Cost approach to value.

For example, a standard exterior door unit today would cost \$550 to supply and install, while a “green” door would cost \$750, an increase of \$200. This would immediately mean that the “green” door is a code upgrade because there still is a supply of exterior door units, but once these standard door units are no longer manufactured, or in the supply chain, the only alternative would be the “green” door unit for replacement. At that point, it no longer becomes code upgrade but a Principle of Substitution due to obsolescence and is no longer considered code upgrade. It becomes part of the Replacement Cost.

Just because the reference is to residential homes, and not agriculture, commercial, institutional or industrial buildings, that does not mean that they will not be affected by this because they will. These products and labour practices in the construction industry, do not distinguish between these groups and when obsolescence becomes a factor, it applies to all types of buildings. It is only a matter of time.

Yes, garbage recycling is going to affect you when as an underwriter, you write guaranteed replacement policies because not only is the waste and debris being sorted, the demolition will soon take the form of deconstruction. In fact this has already started in some municipalities today. Be prepared to spend as much as 8 times what you would have spent for demolition in the past and this doesn't address asbestos, lead, mercury, or mold abatement.

So what does this all mean to the adjuster, broker, underwriter or insured in dollars and cents? Let's find out.

For example, the average wood-framed house contains between 30 and 40 pounds-per-square-foot of building materials. That means a 1,500 square-foot house contains between 22.5 and 30 tons of material, and a 2,000 square foot house has 30 to 40 tons.

Through deconstruction efforts, 75 to 80 percent of a building can be kept out of the landfill. Typical salvage is framing lumber, doors, windows, cabinets, flooring, plumbing and electric fixtures, and more.

The cost of deconstruction varies depending upon the materials used to build the house in the first place. Further, the costs are dependent on the location of the house, the local landfill costs for the actual debris generated from deconstruction, the contour of the site as well as and ease or difficulty of getting to it. Typically, a contractor can deconstruct between 700 and 1,000 square feet per week.

The average demolition is \$10,000 to \$20,000 while deconstruction is typically \$20,000 to \$35,000. Salvage for these building components can generate up to \$18,000.

If you have mold, asbestos, lead, or mercury in the building, the abatement of such exposure can cost you up to \$4,000 for a simple average encapsulation to a high of \$100,000 for a full abatement process for the residence which you would incur whether you demolished or deconstructed.

**SO HOW DOES THIS AFFECT THE COST OF THE REPLACEMENT COST VALUE OF THE BUILDING?**

Concrete – Current methods of reusable formwork will be replaced with polystyrene forms that stay in the ground as insulation once the pour has been cured. Concrete countertops will become more popular using various recycled materials.

Wood, Plastic & Composites – Panels comprising of a structural insulated panel (SIP) with OSB on both sides will be used as exterior walls, and roof panels. Engineered I-joists with recycled material and southern pine will be used in place of conventional joists of today.

Thermal & Moisture Protection Insulation – Radiant barriers, with 97-98% reflectivity in the form of standard aluminum foil, laser perforated, heavy weight aluminum foil, double bubble sided will be used in conjunction with reflective roof coatings in the form of rubberized water base, asphalt/aluminum silver, polyester fabric, acrylic ice/water shield and the appropriate flashings as roof cover. In conjunction with this there will be green roof systems comprising of plant trays, and vegetation.

Door & Window Openings – Solar tube skylights with acrylic dome tunnels, and rubber window and door gaskets for weather tight installation.

Additions – Paint finishes will consist of low VOC emission will be required along with manufacturing of these finishes within a 500 mile radius of the building site. Free standing pellet stoves, window glazing shading, solar hydronic panel roof mounted water supply systems, photo-voltaic integrated roof tile systems, wind turbine generators, electrical back up power storage units, reverse osmosis/deionization water purification systems, greywater regenerating systems for domestic use (non-consumption), water saving plumbing fixtures, insulated plumbing pipes, geothermal heating systems, radiant floor heating distribution, heat recovery ventilators, room ceiling fans with timers for air circulation, exhaust vents and fans, led exterior and 6 volt exterior lighting, recycled paving materials, recycled paving bricks, drip irrigation systems (weather sensed), rainwater harvesting systems, ground cover, vines, shrubs and trees with green planting accessories.

Retrofitting – concrete made from recycled materials, mold, insect treated lumber, spray foam insulation, recycled roofing materials, recycled siding materials, recycled doors and windows, triple thermo glazed window panes, recycled flooring materials, recycled paneling, recycled wall tiles, energy efficient built in appliances, low consumption water closets, faucets and showerheads, high efficiency water heaters, high efficiency heating boilers, energy recover ventilators, energy recovery ceiling fans, and energy saving light fixtures.

All of these changes will be slowly integrated into the building code over the next 8-10 years starting this October. To accommodate these changes, municipalities will have new infrastructures or upgrading of existing infrastructures to complete and once completed, changes to the building code will come into effect in that municipality.

These changes will have an impact on other costs associated with insuring to value and a loss occurring.

Permits – Additional permits will be required concerning, vegetation, trees, eco water systems, mandatory inspections for asbestos, lead, mercury and the feasibility of deconstruction rather than standard demolition and debris removal. The restoration contractor will have more site visits to attend.

Structural Drying – Usually this formed part of the Emergency Service portion of loss whereas it was a loss prevention measure to stabilize and secure the loss. This process could become an intricate part of remedial process under the green banner. There is no real allowance for structural drying in the Replacement Cost Value and these costs could now become quite higher.

Deconstruction – The additional cost of this will not be in the Replacement Cost Value of the building but rather form part of the Demolition and Debris Removal Cost Value.

Abatement – There is the possibility now of some form of abatement from a simple encapsulation to a full abatement requirement. Again this would form part of the Demolition and Debris Removal Cost Value.

Security – Since new expensive materials will be used on the restoration or rebuild, the site will be a target for theft or vandalism; therefore site security will be a must. The Replacement Cost Value does not allow for such expense.

Going Green – At first the additional cost will be attributed to Building Code Upgrade, but once stock of existing products are depleted and no longer manufactured, then the Principle of Substitution takes over and the additional cost will form part of the Replacement Cost Value. Not only this but the newer green products can elevate the existing quality of the building up to a higher quality, thus the building is not insured to value.

Sound complicated, well it is. Only a qualified, reproduction appraiser for buildings who has knowledge of both restoration and insurance, will be able to assess the valuation of buildings in the future starting in October of this year.

Real estate appraisers who filled their down time with “insurance appraisals” using Marshall & Swift Replacement Value, Segregated Cost Method, or a market appraisal will not suffice, as their accuracy, will not be there due to the influx of a wide range of variables of conditions of the structure and site that cannot be addressed using this method. The same goes for Quantum Surveyors as well because the quality and obsolescence of material and labour practices will be prominent in determining value. This will be ongoing for the next 8 years with emphasis on the appraisers experience and ability in both the restoration and insurance fields.

We at INTEGRAL are ready for these changes, as our reports will reflect greening applications to construction immediately under the appropriate section for applicable limits for an insurance policy. Although these changes will increase our time it takes us to complete an appraisal they will not be passed along because we are maintaining our existing program fees.

For more information or to order an appraisal, call Sarah Bennett at (604) 615 – 9573 or visit our website at [www.integralconsultants.ca](http://www.integralconsultants.ca)

*Ron Wilkes, Senior Consultant*

*With over 45 years’ experience in both insurance and restoration, Ron Wilkes has held various positions in the insurance industry as an inspector, an underwriter, and a manager. Ron also held positions as an estimator, site supervisor, project manager, general manager, and as an arbitrator in restoration.*

*Ron is a Certified Residential and Commercial Marshall & Swift Instructor, a past Associate with the International Society of Appraisers, and he also holds IICRC designates. Ron is a founding member of The Restoration & Replacement Network, and he specializes in all facets of Insurance Appraisals. He has been on Cat Teams across this country.*

*Ron is recognized and accepted as expert in the field of Building Damage by insurance companies, independent adjusting firms, insurance brokers, law offices, government bodies, agriculture businesses, commercial establishments, institutional risks, and industries as well as the general consumer.*