



## building envelope [air quality]

### Measures taken to improve air quality in the PNZ:

- Choose healthy, non-toxic materials for the building structure & finishing materials, including VOC-free products (i.e. paints, stains, lacquers)
- No traditional (formaldehyde containing) particle board or MDF used to build cabinetry or furniture
- Hard floor surfacing (concrete with water based stains) was utilized throughout the home reducing off-gassing typical from carpets and adhesives used for installation of linoleums and some wood flooring; hard floors are also easier to clean & keep free of toxin build-up
- Furnishings, window coverings and decor were selected with priority given to natural materials with no or natural dyes (some chemical dyes are quite toxic) and low or no VOC paints and stains
- Mattresses and linens are made of certified organic cottons and wools (I was shocked to learn what many traditional mattresses and linens are made of & treated with, and what we breathe in as we sleep!)
- Use of indoor houseplants to absorb and destroy VOC's and purify the air
- Installation of a Heat Recovery Ventilation system(HRV) to supply fresh air (*for more detail see separate info sheet on HRV*)

### Resources:

**Environmental Protection Agency** website has lots of great information and a very cool virtual room-by-room tour of a home that teaches about the key pollutants and how to address them:  
<http://www.epa.gov/iaq/iaqhouse.html>

**The Healthy Home** (book by M&D Wentz)

[www.myhealthyhome.com](http://www.myhealthyhome.com) An amazing and comprehensive book/website with simple truths and measures you can take to protect your family from common household health dangers.

**The Mattress & Sleep Company** (Edmonton) [www.tmasc.ca](http://www.tmasc.ca).

Stop in and ask them about how you can green up your mattress/linens while dramatically improving your air quality in the room you spend 1/3 of your life in!

We went to great pains to build our house to be as air tight as possible, so that we can trap in the warm air. This has huge benefits for energy efficiency, but air tightness also has its pitfalls.

### Indoor Air is More Polluted than Outdoor

We all know what happens if one seals his head in a Ziplock bag and re-breathes the same air for too long! Lack of natural (passive) air exchange can be a problem, especially since we northerners spend an awful lot of time confined indoors. Add to that the results of EPA research that has shown that our indoor air can be 3-5 times more polluted than outdoors! Why, you ask? Partly because the low level of pollution outside accumulates over time in things like our bedding, drapes, furniture & carpets. And partly because many of the things that we innocently bring into our homes “off-gas” nasty organic pollutants (volatile organic compounds, or VOC's) that are breathed in and then accumulated in our bodies.

### The Culprits

Here are some common things that off gas VOC's: paints, lacquers and stains, hairspray & cooking spray, household cleaners, air fresheners/artificially scented candles, carpets and synthetic materials, fabric softeners, cabinetry and furniture built with pressed wood, dry-cleaning chemicals on your clothes....the list goes on. Of course, some of the off gassed VOC's are worse than others, but even a little bit of toxin can really add up when it comes from a lot of different sources in your home.

At this time, surprisingly little research has been done to determine exactly what health effects occur from exposure to VOC's found in our homes. However, many of these are suspected or known to cause such pleasantries as cancer and hormonal disturbances in humans. Organizations such as the Environmental Protection Agency & Health Canada have been actively addressing this major public health issue.