

## GREEN BUILDING PRACTICES USED IN 2010 Parade of Homes Best Green Home

Green building is a way in which we design and construct a building project. It takes into account not just a variety of products and systems but rather considers the whole house. When designing a green project we consider all the different products, the equipment, the environment and how they perform by themselves and also how they interact with each other. Just as important as the systems and products, we must consider how these products affect us in our daily lives and how they affect the land we're building on and the community we're building in.

Our latest custom home was built with green building principles kept in mind. The main green goals of this home were to optimize the indoor air quality and energy efficiency. We are happy to announce that our new homeowners have already experienced the benefits of clean indoor air as they have been free of sinus infections this fall. They report that typically they would have needed antibiotics at least once by now during the fall months!!

Listed below are many of the green features used in this home.

Please do not hesitate to contact us if you have any remodeling or new home construction questions.

**GREEN FEATURE: DRAINAGE TO DAYLIGHT**

**PURPOSE:** To drain water away from foundation of home to collection site away from house. Reducing the water pressure on the foundation lessens the opportunity for water to get through any cracks

**BENEFIT:** Keep basement dry, thus decreasing humidity and the possibility of mold formation. Keeps us healthier!!

**GREEN FEATURE: ENHANCED FOUNDATION WATERPROOFING**

**WHY GREEN:** Keep basement dry, thus decreasing humidity and the possibility of mold formation.

**BENEFIT:** Improved durability of home, healthier living.

**GREEN FEATURE: INSULATED CONCRETE FORMS**

**WHY GREEN:**

1. **RECYCLED MATERIAL:** ICFs are made from Expanded Polystyrene(EPS), which was developed as a use for a waste-stream product in the development of oil. In other words, it was originally considered post-industrial recycled material. The styrene resins are transported to the local molding plant, where they are expanded to 28 times their size with the use of only air and moisture.
2. **ENERGY EFFICIENT**
3. **Increased insulation of the home.** An insulated foundation becomes part of the house's thermal envelope, contributing to energy conservation and creating a more comfortable environment.

**BENEFITS:** Lower heating costs, sound insulation makes home quieter, decreased air infiltration (drafts), higher resistance to damage due to fire, lower maintenance costs as will not rot, withstand the effects of time and extreme weather conditions.

**GREEN FEATURE: ENGINEERED FLOOR JOIST AND HEADERS**

**WHY GREEN:** Products contain fewer materials and achieve the same end-use requirements as conventional products. No added urea formaldehyde resins. I-joists are a bio-based material. Through engineering, 24 inch spacing on framing is acceptable, thus reducing material usage. For framing that is part of the building envelope the thermal effect bridging is reduced thus increasing effective R-value of insulation

**BENEFIT:** Warmer home, decreased energy usage to heat the house, money savings, reduced use of raw materials.

**GREEN FEATURE: STRUCTURALLY INSULATED SHEATHING**

**WHY GREEN:**

1. Stops the transfer of cold or heat , through conduction, across the lumber from the outside to the inside by providing a 1" continuous layer of insulation around the entire building(Provides a thermal break).
2. Replaces the use of wood sheathing, lessening the demand for new lumber.
3. Replaces the use of housewrap (Tyvek)
4. Provides an additional continuous R-5.5 to the insulation value of the home

**BENEFIT:** Increases the energy efficiency of the home, reduces demand for wood and other building products

**GREEN FEATURE: NO PAINTED EXTERIOR SURFACES**

**WHY GREEN:** Recycled content, locally manufactured, moisture resistant

**BENEFIT:** Less maintenance, durability, decreased mold build-up, no rot, termite resistant, decreased solvents getting leached into the ground (paints).

**GREEN FEATURE: DENSE PACKED CELLULOSE INSULATION USED ON EXTERIOR WALLS AND FLAT CEILINGS**

**WHY GREEN:**

1. MADE FROM RECYCLED NEWSPAPERS
2. Adds thermal mass to the home allowing the building to store more of the energy used to heat or cool the home.
3. Tightens the thermal envelope by providing a Grade 1 (best) insulation

**BENEFIT:** more comfortable home, reduced energy usage, money savings

**GREEN FEATURE: BAND BOARD INSULATED WITH CLOSED CELL FOAM INSULATION IN BASEMENT**

**WHY GREEN:** Wood-concrete transitions do not seal well and lend to air infiltration (drafts). Traditional fiberglass insulation is not effective, however, the band board insulated with spray foam provides superior air sealing and high levels of insulation in these critical transitions.

**BENEFIT:** more comfortable home, reduced energy usage, money savings

**GREEN FEATURE: HIGH PERFORMANCE LOW-E GLASS**

**WHY GREEN:** High efficiency .28 U-factor glass reduces the amount of energy transfer through it. Low-e argon reflects the sun's rays and keeps the hot summer sun out thus reducing the strain on the HVAC unit.

**BENEFIT:** comfortable home, decreased energy usage, money savings

**GREEN FEATURE: OPEN CELL FOAM INSULATION ON SLOPED CEILINGS**

**WHY GREEN:**

1. Provides a tight air seal and high level of insulation under the sloped ceilings as spray foam hardens in place thus reducing sagging and settling/compaction which would reduce the effectiveness of the insulation over time

2. Tightens the thermal envelope by providing a Grade 1 (best) insulation

**BENEFIT:** more comfortable home, reduced energy usage, money savings

\

**GREEN FEATURE: DUCT WORK WITHIN BUILDING ENVELOPE**

**WHY GREEN:** Running duct work on exterior walls reduces the ability to insulate the space the duct work occupies thus compromising the thermal envelope by reducing the R-values of the wall. As the temperature outside goes to extremes, the duct work will become hot or cold thus effecting the temperature in the house . Placing duct work inside the building envelope midigates these negative effects.

**BENEFIT:** comfort, money savings

**GREEN FEATURE: HEAT RECOVERY VENTILATOR**

**WHY GREEN:** HRV units move stale, contaminated air from inside the house to outdoors. Simultaneoulsy, the unit draws fresh air from outside, filters and distributes it throughout the house.

**BENEFIT:** Maintains healthier indoor air quality by reducing toxins, minimizing effects of off-gasing from such products as carpets, furniture, paints/finishes, manufactured wood products. Helps alleviate many, common health problems such as allergies, sinus problems, sleep disturbances, among others.

**GREEN FEATURE: HIGH EFFICIENCY FURNACE AND AIR CONDITION SYSTEMS**

**WHY GREEN:** HVAC system is engineered for the size of the home thus reducing the amount of energy used to maintain a comfortable temperature of the home. AC cycles at correct intervals allowing the building to be dehumidified during cooling cycles.

**BENEFIT:** Lower costs at installation as the unit is engineered to fit the home, money savings, energy savings by reducing fuel consumption

**GREEN FEATURE: COMPUTERIZED THERMOSTATIC COMMAND CENTER**

**WHY GREEN:** Properly utilizes the energy savings features designed in the HVAC system

**BENEFIT:** Simplified operation of complicated HVAC system making it user friendly, money savings, comfortable home

**GREEN FEATURE: INSULATED HOT WATER SUPPLY LINES**

**WHY GREEN:** Standing water in the water lines will cool quickly if not insulated properly. Insulated water lines will maintain temperature of water longer.

**BENEFIT:** money savings

**GREEN FEATURE: ON-DEMAND TANKLESS HOT WATER**

**WHY GREEN:** Energy efficiency, less energy usage. Most water heaters heat 30 to 70 gallons of water and keep it hot until it's needed by continuously cycling on and off, maintaining the water typically at 120 degrees Fahrenheit all the time, thus, increasing your energy bills.

**BENEFIT:** According to the US Department of Energy homes that use 41 gallons or less of hot water daily, demand water heaters can be 24%–34% more energy efficient than conventional storage tank water heaters. They can be 8%–14% more energy efficient for homes that use a lot of hot water—around 86 gallons per day. You can achieve even greater energy savings of 27%–50% if you install a demand water heater at each hot water outlet.

**GREEN FEATURE: LOW FLOW FAUCETS AND SHOWERS**

**WHY GREEN:** Decreased water and energy usage. Low-flow shower heads use about 2½ gallons of water per minute compared to between four and five gallons per minute used by conventional heads. Low-flow faucet aerators can cut the water usage of faucets by as much as 40% from 4 gallons per minute to 2½ gallons per minute. Newer shower heads are designed to make you “feel” like you have more flow pressure.

**BENEFIT:** Reduce your home water consumption as much as 50%. Reduce your energy cost of heating the water by as much as 50%, money savings

**GREEN FEATURE: LOW FLOW DUAL FLUSH TOILETS**

**WHY GREEN:** Decreased water and energy usage, environmentally friendly.

Toilets consume an average of 20.1 gallons of water per person, per day in a home with no water-conserving fixtures, according to the American Water Works Association. That’s nearly 30 percent of an average home’s daily per-person indoor water use. Upgrading from a 3.5 gpf (gallons per flush) toilet to a 1.6 gpf model will reduce one person’s annual water use from 27,300 gallons to 12,500 gallons, according to the Federal Management Energy Program. Low Flow Dual Flush toilets save even more, as they have the option to use less water for flushing for number 1!

**BENEFIT:** water savings, money savings

**GREEN FEATURE: COMPACT FLORESCENT LIGHTING**

**WHY GREEN:** reduces energy consumption

**BENEFIT:**

1. Reduced green house emissions. If every American home replaced just one light with a light that's earned the ENERGY STAR, we would save enough energy to light 3 million homes for a year, save about \$600 million in annual energy costs, and prevent 9 billion pounds of greenhouse gas emissions per year, equivalent to those from about 800,000 cars.
2. Reduced Costs. Per US Department of Energy CFLs use about 75% less energy than standard incandescent bulbs, last up to 10 times longer, produces about 75% less heat, so it's safer to operate and can cut energy costs associated with home cooling

**GREEN FEATURE: ENERGY STAR APPLIANCES**

**WHY GREEN:** Designed to save energy and resources. Lower energy and water usage mean less air pollution from power plants and less wasted water.

**BENEFIT:** The average home in America today uses \$1,300 - \$1,900 in energy costs a year. By simply switching to Energy Star® rated appliances, you'll save on average 30% on your energy costs.

**GREEN FEATURE: PRE-FINISHED HARDWOOD FLOORS**

**WHY GREEN:** USING CERTIFIED SUSTAINABLE WOOD FORESTS, pre-finished products reduces the off gassing of VOCs. Most products used to finish our homes, ie stains, paints, continue to emit VOCs. When we use pre-finished low VOC products the amount of toxins emitted to the air is reduced.

**BENEFIT:** Improved air quality, healthier living, sustainable forests

**GREEN FEATURE: ROOF OVERHANGS**

**WHY GREEN:** 1. Passive Solar Heating and Cooling: The shadow/shade made by the overhang can help keep the hot summer sun from heating the house, while, in the winter, the sun is actually able to penetrate to the windows and help passively heat the home.

2. Sustainable Building Practices: Overhangs help protect the home from moisture damage caused by precipitation.

**BENEFIT:** Lower heating and cooling costs, lower maintenance costs.

**GREEN FEATURE: FAN TIMER**

**WHY GREEN:** In order to maintain the home at the optimal humidity level of %, the shower fan should run for 20 minutes after the shower ends. In life, often times we are done and out of the home before the 20 minutes are over or would forget to turn it off. A pre-set timer will automatically turn the fan off after 20 minutes.

**BENEFIT:** reduces the formation of mold and mildew, maintains the home at optimal humidity level, improved air quality, health

### **GREEN FEATURE: LOW VOC PAINTS**

**WHY GREEN: Volatile Organic Compounds** are the organic solvents used in standard paints which serve as the carrier for paint pigment. When paint dries, the odor smelled is from the evaporation of VOC's used in the paint.

Some of the more common VOC's used in paint as solvents and preservatives include [formaldehyde](#) and benzene. Pigment chemicals can include lead, cadmium and chromium. The "just painted" smell is VOC emissions from volatile chemicals like diethyl phthalate and dibutyl. Oil based paint has the highest level of VOC's. Exposure to VOC's can trigger asthma attacks, throat and eye irritation, nausea, dizziness, headaches, and other health problems. Long term exposure can lead to cancer and diseases of the kidney and liver.

There are now alternative interior paints available that contain extremely low-VOC or no-VOC formulations reducing these negative effects.

**BENEFIT:** Better indoor air quality, improved health, minimal "just painted" odor

### **GREEN FEATURE: PANTRY**

**WHY GREEN:**

1. Optimal use of space: To reduce the building size, one closet space is used for several reasons...laundry, pantry, general storage. This decreases the burden on resources when building.
2. Energy Star Products

### **GREEN FEATURE: ENTRY WAY NEAR GARAGE with shoe removal and storage**

**WHY GREEN:** Radon is a naturally occurring inert gas. The health issue comes into play as the radon gas decays as it is then able to attach to dirt particles. As these dirt particles become airborne we can inhale them and then the decaying radon particles attach themselves to the lining of the lungs. These radon particles release small bursts of energy which can damage lung tissue and lead to lung cancer over the course of your lifetime. Keeping the dirt confined to one area makes it easier to clean thus reducing the amounts of airborne dirt in the home. So taking off your shoes in one select location actually makes you green!

**BENEFIT:** healthier living environment, improved health

**GREEN FEATURE: FINISHED BASEMENT**

**WHY GREEN:** Using ARXX insulated concrete forms allows for improved finishing of the basement because when you use the insulated forms you don't have to frame out the walls. Thus:

1. Save on natural resources utilizes an existing space... do not need wood for framing
2. No airspaces behind basement wall as in traditional framing therefore, no trapping of moisture

**BENEFIT:** Improved energy efficiency, healthier living spaces, reduces demand for lumber

**GREEN FEATURE: 3-SEASON ROOM**

The 3-season room is placed outside the home's thermal envelope. This allows us to design the room with glass for passive solar heating. Large window openings and a ceiling fan help to cool the space through the warmer season.

**BENEFIT:** Comfortable living

**GREEN FEATURE: DESIGNATED RECYCLED AREA**

**WHY GREEN:** Easy to use, designated space in the kitchen will make us more apt to recycle.

**BENEFIT:** Healthy for our environment

**GREEN FEATURE: ELECTRIC STOVE**

**WHY GREEN:** Gas stoves will emit some products of combustion into the air which can be breathed. Electric stoves have no combustion thus no emissions to breathe, therefore less toxins in the air

**BENEFITS:** Healthier living environment