

BELLE RIVER EnviroHome Features



Structural & Insulation Details

- Home built to exceed R-2000 specifications which will cut heating and cooling costs by 60%

Framing Details & Insulation Cross Sections

- Basement walls consist of 9" poured concrete using 'green' product by local company using area quarry stone and gravel (Jay-Dee Concrete)
- 2" R-10 Code Board inside basement wall with 2x4 finger jointed stud wall w/ R-12 batt insulation making wall cavity a combined R-20
- Outside wall cavity consists of 2x6 spruce w/ R-20 insulation (Pink) with 1½" code board R-7.5 exterior cladding with Ty-par house wrap and a strapped 1½" x 1½" interior with compressed R-8 insulation for a combined approx. R-34
- Sealed vapour barrier runs between strapping and 2x6 with all electrical and plumbing running in 1½" cavity to prevent air leakage breaks in vapour barrier
- Ceiling and roof consists of a raised heal truss allowing approximately 12" of insulation at wall/ceiling intersect using Accuvent™. Attic to have R-60 (Pink) blown-in insulation. Trusses also to be strapped to protect vapour barrier
- Basement floor consists of 4" concrete slab containing ½" IPEX Hydronics with continuous vapour barrier and 2" rigid R-10 insulation (Pink)
- Windows are combination Low"E" Argon gas filled thermo pan with SuperSpacer non-conductive thermal glass break
- Exterior doors are 1¾" thick fiberglass with LowE Argon and SuperSpacer glass inserts (Golden Windows)
- Attic ventilation comes from Accu-Vent™ Eave Vents and solar powered roof vents
- Main house has magnetically sealed attic hatch using recycled steel door knockouts with R-14 polystyrene core
- Recycled wood material showcased are finger-jointed spruce studs, open web floor joists engineered product also recycled and finger-jointed engineered wood parallam wood beams
- All 2x3 bridging is processed from cut-offs
- Left over cardboard is recycled
- Wood stakes for footings, basement lay-out, driveway and sidewalk borders are processed from cut-offs

Heating Features

- In floor hydronic heating system for basement radiant heat using combination heat source: Natural gas 99% EE boiler (BAXI) & solar hot water heating (Enerworks) consisting of Energy Pack and two (2) solar collectors. Water valves control this zoned heating
- Main floor supplemental heat comes from natural gas 95% EE (energy efficiency) dual stage burner furnace with ECM D-C driven fan motor (Armstrong)
- Supplemental heat also comes from two (2) 4'x7' solar sheets on south side of building with solar driven fan motors to distribute air (Solar Sheet 1500G)
- Napoleon gas fireplace also provides heat with 88% EE
- Grey water heat is recovered through a PowerPipe™ (Reliance Home Comfort) and redirected to the hot water tank

Electrical Features

- Approximately 30-40% of power needs are generated by a 1.2 kilowatt solar array consisting of 8 solar panels. Battery collectors convert back to a critical loads panel eliminating potential problems due to potential outages. Eliminates need for generator panel.

Electrical Energy Efficiency Features

- ECM DC-driven furnace fan combined with a SEER 16 central air raises the SEER rating by almost 2 SEER points
- ECM driven fan motors in heat recovery ventilation system (Nutech)
- All lights bulbs to be compact fluorescent
- Energy efficient lighting
- ENERGYSTAR appliances
- Low voltage under-cabinet lighting
- Programmable thermostat
- Special lighting features controlled by motion sensors and a dimming process
- Security system networked with all electrical
- Central vacuum has special environmentally friendly filtration system

Air Quality

- Mechanically the house has a stand alone HRV, piped separately from the furnace to bring in fresh air at approximately 1/3 air changes per hour
- The house also includes:
 - Hepa filtration system (Nutech TFP)
 - In-line, particulate media filter (Honeywell)
 - Humidification system (HRV) to balance moisture (Nutech, Lifebreath)
 - Under slab radon gas expulsion process
 - Interior paint with no VOC (volatile organic compounds)
 - Interior finishes of water based stains and lacquers. No VOC's. (Designworks Cabinetry)
 - All cabinetry interiors to be completely sealed (no off-gassing)
 - All flooring is either natural or 'green'

Plumbing Features

- Water conservation is controlled by 'low water consumption' shower heads and controls
- Toilets are a low consumption, dual flush style (Kohler)
- Water quality controlled by a Reverse Osmosis system with UV light purification (Innopure)

Exterior Features

- A portion of the exterior is clad in 'green' stone product (Arriscraft)
- Masonary cement is also a 'green' product (St. Mary's Cement)
- The second story is clad in environmentally-friendly cement board (James Hardie)
- Eaves, fascia and gutters are made with recycled aluminum
- Interlocking brick sidewalks and drive are produced locally by Santsar Industries
- Yard irrigation (Green-Up Irrigation) is managed by diverting rain and storm water to an in-ground 2,500 Gal cistern (Underground Specialties) so water can be pumped to support landscaping thus lowering water and sewer consumption charges
- Rear yard drains are installed using E-Z Flow drain tile which is a recycled product
- Driveway and rear patio constructed with locally manufactured interlocking stone (Santsar)
- All landscaping is designed using native plantings, which is something unique given our most southern Canadian climate. Larger trees are to be strategically placed to minimize sun exposure in summer and wind in winter.