

## Green Technologies

Two types of systems:

**Passive systems** - are without active mechanical systems

**Active systems** - usually involve use of mechanical systems

Active systems should work in tandem with passive systems.

### Passive Examples

- Windows - Solar collection in winter, venting/cooling in summer. Operable windows are an essential part of passive design in cooling buildings.
- Roof overhangs/sun shades-summer - Cooling/shading
- Cooling towers or vents
- Rainwater collection
- Landscaping and trees -for shade, cooling, micro-climate, and aesthetic benefits
- Transitional spaces - air lock entries/verandas

### Active Examples

- Geothermal heating and cooling (ground-source heat pump)
- Solar domestic hot water (SDHW)
- Photovoltaics (PV) for power
- Air exchange/HRV - better air quality/improves efficiency of building envelope

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Our approach is to use the systems that are most appropriate for the project. It is based on a 'common-sense' design philosophy/holistic approach to building design. Buildings are designed so that windows are oriented for maximum exposure to the sun in the winter, but shaded during the summer months. The building should make use of naturally-occurring site features to maximize its 'passive potential' located on south facing hillsides or protected by trees from the prevailing winds.

~~ *A responsive building is designed to be site and environment specific.* ~~

## Products

- Local materials - lower embodied energy/support local economies. Engender a sense of place, connection to immediate environment and locale/Alberta made products.
  - Strawbale
  - Local post & beam timberframe
  - Recycled fir timbers
- FSC certified lumber - for framing
- Products made from recycled and renewable materials
  - Interior: Cork or *Marmoleum* flooring, etc
  - Exterior: *Hardi-plank* siding, metal roofing, etc
- Low-VOC materials - avoid specifying MDF/melamine/OSB, including some paints and many adhesives. Formaldehyde-free insulation and drywall.
- Low wattage lighting - appropriate lighting for spaces/multi-task lighting for different uses/timers/etc.
- Water-saving plumbing - low flush or composting toilets, low-flow faucets
- Energy efficient appliances

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