

The Meredith Centre

Environmental Features – A Design for the Future

“A building that grows with the community”: The project team plans to emphasize environmental technology in the design, construction and operation of the community centre. By using tested, proven features and designs, the building will be healthier, more ergonomic and have significantly lower environmental impacts. In doing so, operating costs associated with energy will be greatly decreased and the building will put less burden on the water usage and sewage demands; two very important factors for the residents of Chelsea. In the next few years, we anticipate breakthroughs in solar technology as a power sources, as well as new standards for “zero-plastic” buildings. Using smart design strategies, we will allow the building to adopt new technologies as they prove themselves and be responsive to the changing needs of the community.

Here is an overview of the systems and technologies that are being considered in the initial design phase.

Geothermal heat exchange - "heating from the ground up”: A Geothermal heat exchange is a heating and cooling system that uses the earths natural ability to store energy in the form of liquid; pumping heat into one system and “cold” into another with the ability to extract the energy when necessary. Using the naturally constant temperature of the earth, geothermal heat exchange, and heat pumps, we can chill our ice and keep our centre warm. The Olympic village in Montreal utilizes a geothermal system. Since its installation in 1972, there has only needed to have one heat pump unit replaced and the system is still operating at optimum performance. The cost of installation has been paid for many times over and it only costs pennies a day to operate.

Passive solar – “the cheapest source of energy”: A architectural professor was once quoted as saying that if one had to pay to heat or cool a building, that it was a design flaw. The Meredith Centre has a classic southern exposure looking over the soccer fields, calling for open views and heat preserving surfaces that take the best advantage of this inexpensive energy source.

Rainwater sequestration - "protecting the aquifer". Rainwater sequestering for reuse within the Meredith Centre lightens our dependency on the local aquifer. We can capture rainwater in cisterns for reuse in toilets, water for the ice surface and for irrigation, reducing our fresh water needs considerably.

Natural ventilation - "no more hermetically sealed buildings”: Natural ventilation is now the tool of choice to design the way air from the outdoor environment flows in, out and through the building. It also gives individuals within the building the ability to control their own immediate surroundings – by opening the windows, for instance! This form of ventilation provides high quality indoor air naturally, and by using smart design, also reduces our cooling costs.

Great indoor air quality – “we can control toxins in our indoor environment”. Many of today’s mainstream building materials, from plywood to paint, from flooring to glues contain a high level of V.O.C.’s (Volatile Organic Compounds) and carcinogens. It has often been said that there is not a more toxic environment than the indoor air in a new building for the first 3 to 5 years of its life. By choosing building materials with no or little toxic emissions and design strategies to reduce indoor air quality contaminants we can maximize occupant comfort and lessen long term health impacts for employees and users.

Active solar - "an increasingly important component": Whether we are creating usable electricity from the sun's rays or using the heat of the sun for the water heating needs, coupled with the geothermal systems, active solar greatly reduces our energy consumption. Two applications at the top of our list are: SOLAR HOT WATER SYSTEMS - by running water through tubing exposed to the sun, the water is heated or “preheated”, saving energy; and PHOTOVOLTAIC SOLAR PANELS - photovoltaic panels convert the energy of the sun into usable electricity. Current PV panels have a fairly long pay back period, but we believe new technologies will soon be available. We are therefore designing the building to be “solar ready” for future implementations of this technology.

Local materials - "something exotic from close to home": When local materials are used it enables the building of partnerships while strengthening our local economy. Through wise use of local and sustainable materials we can shrink the environmental footprint through the lessening of impacts from transportation.

Visual monitor of energy use - - "our energy systems on display”: A monitor placed in the main foyer of the community centre, will show all of the systems and their current status around the building. Much like the dashboard in a Prius, the visual monitoring system will educate building visitors on energy and water consumption, while giving us the tools to continuously improve performance.