



THE MANITOU, is designed to be a unique example of Canada's commitment to the *Paris Climate Accord*, and the *Montreal Protocol*. It is to be a showcase research center as well as a model for future sustainable development in Canada, atop a hill in the heart of the city of Sudbury.

This Project follows in the trail blazing path of environmental leadership shown by the *City of Greater Sudbury* through its pioneering carbon sequestration efforts through the re-greening program in the past 41 years and by *Laurentian University* through the *Living With Lakes Centre Building*.

It will consist of two (2) residential towers on a common base rooted in feasible environmental systems to make it a self-reliant development. The complex will have eight hundred and twenty-six dwellings (826) in total. The first tower will have 476 senior citizens units. The second tower will have 350 units for modest income people.

The first basement of approximately 4000 sq. meters will house all the amenities and services as required to keep the residents healthy, active, involved and stimulated. Thus, aside from the main entrance lobby, staff room, communal dining room and kitchen, there will be provision for bowling alley, billiards, bocce ball, virtual golf, visual arts, (i.e. painting, photography, ceramics, weaving and knitting) communal assembly room (for dancing, yoga, music, bingo, etc) movie theatre, as well as a card room for bridge or other games. The library, sometimes used for assembling puzzles, will have an atrium reading room

with plants irrigated with grey water. There will be a clinic with 24/7 Nursing Services. It may also include a Pharmacy, Doctor, Dentist, Hairdresser, Barber, Podiatrist etc., as and when the need arises. There is likely to be a child nursery space with direct access to an outdoor play area.

The design is to create a “Living Building” by sourcing and using construction materials locally available, providing as much green space as feasible, and assuring access to differently abled people. Current vegetation will be minimally disturbed and where feasible green space will be enhanced. Compost generated in the complex will be used in the interior winter garden and solarium, as well in the exterior green space. Surplus compost may be sold to the public. All waste will be segregated into three categories; namely, recyclables, biodegradables, and refuse.

Storm water harvested from the rooftops will be stored in a cistern large enough to store one month's runoff. This water may require only ultra violet sterilization and high filtration to make it potable. A second cistern will be built to harvest storm water from green space, roadways, and parking lots. This water will be channeled into the gray water filtration system and the black water filtration system and the total output will be recycled.

Heat from the city's trunk sewer that runs under the property will be extracted for use in the complex. All dwelling units will have their own fan-coil heat pumps controlling their own thermal preferences. All systems installed will be remotely controlled and will be monitored and recorded in the building engineer's office.

During construction, rock blasted on site will be crushed for concrete and for sequestering CO₂ into frozen pellets. Job manufactured concrete is likely to save approximately 90,000 litres of diesel fuel that might have otherwise been used for transport.

Systems utilized in a creative fashion, will be monitored for flow and heat transfers to determine efficiency and sustainability. This will be open to scrutiny by engineering students at *Laurentian, College Boreal, Cambrian, and the School of Architecture*. This information will also be made available to *NRCAN, FEDNOR*, and other responsible institutions to advance scientific knowledge with a view to meet targets set by climate accords.