



Government City of Sudbury

Background

Like most cities, energy costs represented the second highest municipal expenditure for Sudbury, Ontario exceeded only by labour. Given that energy was such an enormous part of their budget, the goal was to reduce those costs by producing some of their own energy using renewable sources. Part of that included overhauling the existing Wanapetei Water Treatment Facility and Sewage Treatment Plant. The planned work consisted of various energy related retrofits, including upgrades to process equipment, building envelopes and HVAC systems. Conserval Engineering was contacted regarding a solar heating and ventilation system that would optimize energy gain and reduce heating costs.



Water Treatment Plant

The SolarWall® panels cover 185 m² (2000 ft²) of the south wall. The heat is ducted from the top of the solar panels, along the roof, to two heat pump units. This provides 81kW of heat and ventilation air to the facility, which is very important because an adequate level of ventilation air is necessary to maintain the indoor air quality in the facility.



Sewage Treatment Plant

The solar heat from the 700 m² (7500 ft²) SolarWall heater is used in two ways. One wall section heats the ventilation air required in the building. The other wall section preheats the air to the blowers in the aeration tanks. In winter, ice can build up on the compressor vanes causing damage. By preheating the cold air, and potential ice buildup is either eliminated or melted by solar energy. The total airflow is 21,000 cfm, and the heating capacity is 308kW.

Results

Two words sum up Sudbury's approach to managing their municipal facilities: energy efficiency. This job has garnered the city a significant amount of media attention, as local newspapers, the Globe & Mail, and CBC News have commended the municipality for their innovative approach to permanently and significantly reducing heating costs, and lowering the use of polluting fuel sources.

As a result of the success of the first two projects, the City of Sudbury ended up specifying a third SolarWall system on another municipal water treatment plant. In this application, the solar panels will heat re-circulated air.

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