

Renewable Energy Case Study

Agincourt Recreation Centre – Solar Heating System



Facility Profile

The Agincourt Recreation centre has one indoor pool, two ice hockey rinks, and a community centre. The original arena was built in 1958. Various renovations were carried out in 1970, 1981 and 1989. Sections of the existing building were demolished and the recreation centre and pool were added in 1993 and 1994 respectively. Today Agincourt has a total building area of 9047 m².

Solar Water Heating System Implementation

- An unglazed solar collector technology was installed to supplement natural gas for pool water heating.
- The solar system consists of 54 unglazed solar collector panels covering 238 m² of the south facing roof of the swimming pool area.
- The piping system has a dedicated pump and is piped as a secondary water system to the swimming pool water circulation system.
- The system is controlled by the building's computerized control system. A temperature sensor mounted adjacent to the solar panels measures ambient conditions (solar and wind temperature) and determines whether solar heating is available. The controls also prevent losses when heat is not available.

Project Summary	
Project commencement:	Aug 2006
Total project cost (before grants):	\$101,798
Grants	\$39,768
Estimated cost avoidance:	\$6,200/yr
Simple payback period:	10 years
Estimated natural gas savings:	15,000 m ³ /yr
Estimated renewable energy delivered:	90.95 Mwh/yr (thermal)
Estimated CO ₂ emission reduction:	32 tonnes/yr
Project Funding: City of Toronto, NRCan, TAF	

Benefits of Solar Water Heating System

- The main advantage of an unglazed system over other solar heating systems is lower capital cost.
- When the solar system is operating, between April and November, it will provide over 50% of the swimming pool heating load.
- The solar system will provide 328 GJ of energy which will provide annual savings of approximately \$6,200 in avoided natural gas use. It will also avoid creating 32 tonnes of CO₂ gas emissions.