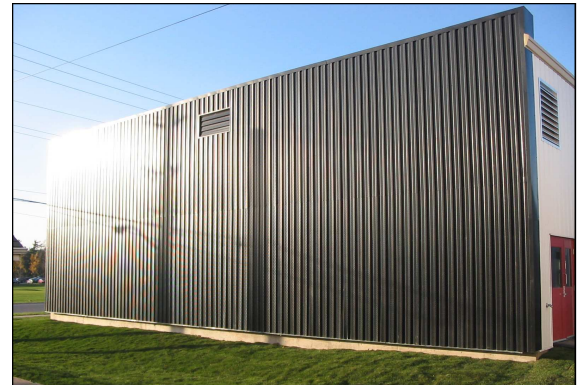


Institutional

St. Lawrence College



Two of the three SolarWall® installations at St. Lawrence College in Kingston, Ontario. New student residence (left), and a training facility (above).

Background

St. Lawrence College has become a strong proponent of renewable technology in the design and construction of energy efficient buildings. The practicality of solar is promoted to students on campus both through innovative curriculum, which includes a dedicated solar program, and more recently through the installation of solar air heating systems on three new college buildings.

Solution

A SolarWall system was specified on a new residence building to heat the ventilation air required in the corridors and common area. The design included 74 m² (800 ft²) of the standard perforated black solar cladding on the south wall, and another 186 m² (2000 ft²) of non-perforated cladding on the north and west walls to maintain a uniform architectural appearance around the building.

140 m² (1500 ft²) of SolarWall cladding was also installed on the new plumbing shop. The system is extremely innovative because it is combined with an in-floor heating storage capability. In the daytime, the heat from the solar panels is distributed throughout the 7,200 square foot

training facility using a flexible ducting system. Excess heat is ducted through 4 inch PVC piping in the concrete floor. The thermal mass of the concrete stores the heat, and discharges it slowly during the evening as a radiant floor heating system.

In the summer months, the system operates in reverse. The cooler night air can be used to lower the temperature of the floor, thereby cooling the air temperature inside the building. This is one of the first examples involving the floor storage of heat generated from a solar air collector.



The excess heat taken off the solar panels is ducted into the concrete radiant in-floor heat storage system, shown left after completion, and shown above during installation.

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