



enerworks
Solar Heating and Cooling

Case Study: Pinery Provincial Park Lambton Shores, Ontario, Canada

Introduction: "The Pinery" with its 6,330 acres by Ontario standards is a relatively small sized gem of a park located on the Southern shores of Lake Huron. Its dense pine tree forest, combined with sand dunes and beaches are enjoyed by hundreds of thousands of tourists and campers every year, coming mainly from nearby cities in Ontario, Michigan and Ohio. Cycling, swimming, sunbathing or kayaking down the shallow and slow-moving Old Ausable River are very popular family activities from spring to fall. It is not unusual to spot white-tailed deer, raccoons or red-tailed hawks on the numerous walking trails.

Background: Starting in 2009, the Ontario Parks commission began upgrading the park's facilities: road re-surfacing, warden building renovations and building new, state-of-the-art wheelchair-accessible restrooms and showers to service the 1,275 camp sites. Energy efficiency was top of mind along with features like motion-sensor controlled, automated low flow shower heads that reduce water consumption. The facilities are not heated, being only used in the warm season. This made water heating the only use for the propane fuel stored in large tanks nearby.

Aims & Objectives: Adding a solar thermal system to save approximately 50% of the yearly propane made a lot of sense and was added to the specifications. Of the 12 new buildings spread throughout the park, 5 were built in 2010 of which two received solar pre-heat installed by another contractor. In 2011 Bear Construction bid on and won the remaining 7 buildings using EnerWorks' newly launched "compact Solar Energy Terminal" units and high performance, Premier line of solar collectors. Of the 7 buildings 5 were slated to get solar systems. The other two were surrounded by tall trees that cast large amounts of shade making solar impractical.

Approach: Bear Construction liked the simplicity, clean look and ease of installation that the EnerWorks light commercial system provided. Two of the 5 solar buildings called for 7 collectors each, while the other 3 called for 14 collectors. Bear's skilled plumbers and the EnerWorks cSET resulted in the piping system being considerably simplified when compared to the 2010 installs by the previous contractor.

Challenges: The 14 collector configuration posed a challenge due to the limited roof space and having to go between roof vents. Bear worked with the EnerWorks engineers to reduce the number of collectors without a significant loss of solar output and the joint team was able to have 9 collectors in a single bank instead of the 14 that were scattered about the roof. This made for better aesthetics on the roof as well as less pipes and fittings.

Successes: Work was completed on time despite the fact that these were Bear Construction's first solar water heater installs and the 5 systems were commissioned in April 2011 just in time for the first campers when the park opened for the season. A similar project was initiated shortly thereafter at Point Farms Provincial Park, about 1 hour drive North of Pinery. The contractor for that job, Cliff's Plumbing, had heard about the activities going on at Pinery and ended up installing a 6 collector system on the only new restroom built at this other park.

Conclusion: Ontario Parks has 329 parks in its portfolio and it's working diligently to gradually bring them up to date in terms of visitor comfort while preserving all the natural beauty of the land.

Solar thermal technology will bring a significant contribution to running the parks in a self-sufficient and economical manner, especially given the very remote location in some cases.

Fewer propane deliveries and less burning of it will have the added benefit of reducing pollution in these natural sanctuaries for plants, trees and wildlife.

