



Application: Hotel, Motel, Conference Center, Institutional Residence

Features:

- Solar water-heating appliance provides **immediate savings** on natural gas costs
- **25-year lifetime** of the appliance
- Solar energy delivered for **\$10.46 per thousand ft³ (3¢/kWh, 33¢/m³)**
- **Expandable design** allows hotel to accommodate larger water loads in the future and further reduce energy costs
- **Retrofit design** plumbs into existing electric gas-fired hot-water tanks. Existing tanks act as back-up to ensure hot water is always available
- **Freeze protection** allows appliance to run year-round
- **Differential controller** turns pump on and off according to temperature differential across the collector array
- **System will have paid back after 4 years** nearly halving the simulated payback of 7 years with an annual solar fraction of 26.5%, an average of 36% in summer, and 17% in winter

Site Specifications:

Name of Property:	Conference Place Hotel
Location:	Kingston, Ontario, Canada
Age of Building:	28 years—business, conference, tourism
Type of Property:	Hotel
Operation:	Year-round
Displaced Fuel:	Natural gas
Roof Type:	Flat roof
Solar Water Uses:	<ul style="list-style-type: none"> • Potable water • 94 guest rooms • Onsite laundry facilities • Kitchen • Seasonal pool

Application Configuration:

Solar Array:	2 modules of 10 Premier Efficiency Collectors each; expandable up to 4 modules
Racking:	C-channel racks at 45° angle
System Flow Rate:	Approximately 6.34 US gallon (24 L)/min.
Energy Terminal:	<ul style="list-style-type: none"> • 1" (25.4 mm) piping • Commercial brazed-plate copper primary heat exchanger • Differential controller • Secondary heat exchanger for pool heating

Assumptions for Simulation:

44 155 kWh/yr of solar energy
 Natural gas energy content: 38.09 MJ/m³
 Delivered natural gas rate: 50¢/m³
 Natural gas inflation rate: 3%
 Auxiliary tank efficiency: 58%
 Lifetime of appliance: 25 years

